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FROM THE EDITOR'S WINDOW

WHO is not interested in cutting production costs? Yet who is satisfied to sacrifice quality for cheapness? The experience of successful management is on record to prove that frequently production costs have been and can be cut without buying cheaper materials or hiring cheaper help.

Many ways are open for developing increased efficiency in the finishing room to the end that the same number of men, with no increase in floor space and no increase in hours per week, actually turn out a substantially greater volume of work.

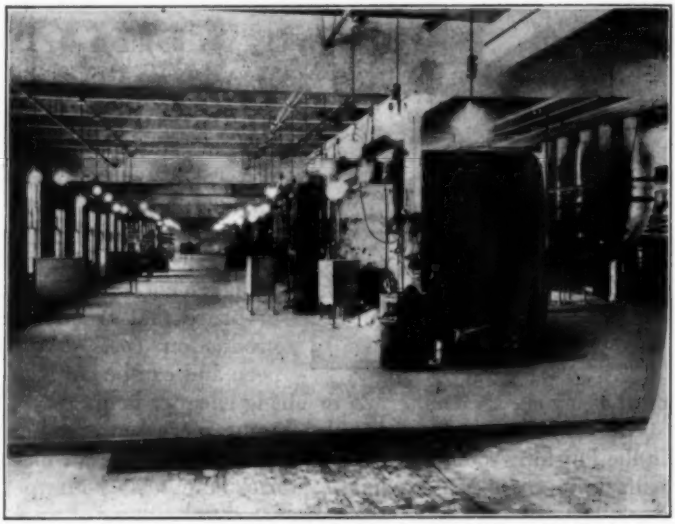
One finishing foreman, interviewed recently, declares that the workmen themselves will automatically develop and maintain increased efficiency—provided the management puts into effect a system whereby finishing labor is paid for in direct proportion to what is accomplished. To prove this he points to doubled production in his department some months after having placed all direct production on a piece-work basis. The new wage-payment plan not only lowered the finishing cost per article, but it saved the company from having to add more men and more floor space.

This is only one example of results obtained by one method. Other methods of increasing productive results are available and will suggest themselves, once a real investigation is made—for instance, improved equipment and a more convenient arrangement of same, supplemented by any needed improvements in the heating, ventilating, and lighting of the finishing department.

W. H. Rohr

Managing Editor

DON'T TAKE A CHANCE WITH FIRE!



In this finishing room a fire started releasing a string of sprinklers. The fire loss was $30,000. The *water damage* nearly half a million dollars.

O'Neill's Fact-O-Crete, *now laid*, will prevent a reoccurrence.

Protect yourselves, lower your insurance rate, and avoid production delays by installing around all hazardous finishing operations—

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Fireproof Watertight Sparkproof

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LACQUER BLUSHING

What blushing is, when and why it shows up on lacquered surfaces, and how to overcome this well known but peculiar trouble, about which so many finish users are still uninformed

By Charles Blanford

WHILE LACQUERS in general are designed to resist blushing under all ordinary circumstances, if the relative humidity or percentage of moisture in the air becomes too great, they may sometimes show a faint blush. Lacquer manufacturers can furnish a blush retardant, which is an extremely strong solvent for nitrocellulose and which evaporates slowly, therefore a small quantity of it added to any clear or colored lacquer at the first indication of blushing will prevent blushing.

A quart of this retardant to each five gallons of lacquer is about the proper proportion to use when blushing first appears, and this small amount will usually remove the blush. If necessary, however, a larger proportion of retardant can be used until the weather clears up and the humidity becomes lower. It is advisable for each lacquer user to have a small quantity of this blush retardant on hand at all times, to take care of any bad weather conditions that may develop.

When the film of a spirit varnish or lacquer takes on a white or grayish cast during the drying period, it is said to blush. Blushing is caused directly by the precipitation of a portion of the solid contents of the material which gives it an opaque appearance. There are two chief causes of blushing in nitrocellulose lacquers:

1—Water introduced into the lacquer due to (a) its presence in one or more of the components, (b) due to its presence in the compressed air, or (c) due to its condensation from the atmosphere surrounding the work.

2—The solvent composition becoming unbalanced through evaporation so that the non-solvent for one or more of the constituents become too concentrated and cause a precipitation. Direct drafts or insufficient ventilation are also occasional causes, although in the final analysis the blushing in these cases is caused by too much moisture in the atmosphere.

Why Blushing Occurs

The most common cause of blushing is undoubtedly an excessive amount of moisture in the atmosphere surrounding the work. This is especially true during the summer months when the relative humidity becomes very high. Sometimes the blush disappears entirely when the film is entirely dry. At other times the work has a foggy or smoky appearance, and again the film may remain permanently white and opaque, depending upon the percentage of moisture in the atmosphere.

The method by which blushing is caused by high humidity is as follows:

The air surrounding the work is filled near the saturation point with water vapor. As the volatile materials in the film evaporate they absorb heat, thus cooling the

film of air adjacent to the lacquer and causing it to deposit some of its moisture. This cooling effect is increased when the lacquer is applied by spraying, due to the fact that when air is released from pressure it absorbs heat which tends to chill the surface being finished.

The moisture which is condensed from the air in minute particles by these two cooling agencies precipitates a small amount of nitrocellulose or other constituents of the lacquer which are immediately re-dissolved, if the concentration of solvents for those particular constituents is sufficiently great in the film.

A point may be reached, however, where the concentration of solvents for nitrocellulose of other constituents of the lacquer is not sufficiently great to re-dissolve the precipitated material, in which case the film remains permanently gray or white.

To Prevent Blushing

To prevent blushing, the tem perature of the finishing room should be kept sufficiently high to lower the relative humidity of the atmosphere to where it does not cause a permanent blush. Direct drafts should be kept from striking the freshly-coated surfaces by keeping the windows and similar openings closed near the spray booth.

When the humidity becomes so great that blushing is still caused in spite of these precautions, a small quantity of strong, high-boiling solvent should be added to the lacquer. Such a solvent will remain in the film until it is thoroughly dry, thus re-dissolving the nitrocellulose as fast as it is precipitated, and preventing the formation of a permanent blush.

Japanese Mother-of-Pearl Finish

Since the readers of INDUSTRIAL FINISHING seem to be interested in artistic finishing — including Mother-of-Pearl finish (page 28, April issue)—I might as well tell how it is done in Japan. Over there we can buy Mother-of-Pearl in the various thicknesses of shells, in very thin translucent flakes, in powders, and celluloid imitation Mother-of-Pearl in sheets.

They come in all colors. The shells are of the abalone, oyster and other shell fish and snails. Powder is prepared from the shells, real pearls and scales of fish. A cheaper grade article is nothing but the baked muscovite finely powdered, which is ordinarily known as "mica."

Shell pearl is used mostly for inlay work. We use the saw, file and stone for cutting, shaping and thinning. Flake pearl is very easy to cut with scissors and knife. When a fancy design or monogram is wanted, the design is painted in urushi* or asphaltum, on both sides of the flake, and after a while the whole is immersed in a bath of diluted sulphuric acid or strong vinegar, which will eat up the unprotected portion and leave only the designs painted. The urushi or asphaltum then must be removed by scraping and washing.

If an ordinary plain surface is required, a number of flakes are joined carefully together so that a smooth appearance will result. After it is thoroughly dry, any irregularity is removed by polishing the surface with a stone.

The cement for this purpose (shell inlaying) is made of about

*See March issue, pages 74 & 76.

one half urushi and one half flour paste. A final coat of varnish or urushi should be applied, and then polished.

Powdered pearl is used either dry or wet. Dry powder is dusted over the size which has become just tacky enough. It should not be too dry or too wet if a fine finish is expected. The ordinary precautions necessary for working with bronze powder will do excellently. By adding a clear varnish to powdered pearl we get a pearl paint.

When preparing this material, always grind well by adding the varnish gradually drop by drop until a smooth paste is obtained, and later add more varnish to obtain the right consistency; also add a little thinner if required. All surfaces should be finished in the usual manner. So much for the pearl finish.—F. S. Araki.

Finishing Materials Wagon

The portable supply depot illustrated in the accompanying drawing, not only facilitates the handling of materials in daily use in the finishing room, but it does away with haphazard shelving of materials also.

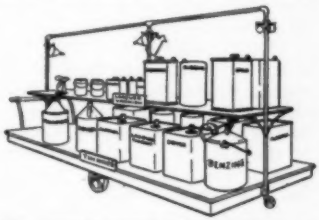
It meets the approval of the well-ordered workman, and much confusion can be avoided since every container is properly marked and has its designated place upon the truck. This eliminates that unsightly and disorderly scattering of the containers about the different finishing departments. It confines the necessary materials to a unit which is accessible to the entire personnel, and it does away with the finishers having to hunt their materials, which oftentimes are found in obscure places.

This portable unit is properly equipped with scales, funnels, strainers, and measures for properly measuring and weighing materials. All of the workmen are instructed to keep the truck orderly and clean, all cans and containers being properly corked and covered.

There is this advantage also, that the workmen get their materials when needed, without delay.

A helper is delegated, and put in charge to see that the stock is replenished every morning for the day's requirements. This automatically confines a check on materials for the work in hand.

The outfit offers no fire risk, as it is protected by an adequate sprinkler system at all times, and is easily wheeled out at any time;



The material wagon with everything on board.

for the night it is parked in an annex between two fire walls. The truck can be wheeled where needed and can be quickly removed in case of fire.

This efficient device has solved a problem that is of great importance to our finishing department. The simple rule, "A place for everything, and everything in its place," has become a necessity with us.—E. C. H. Rottmann.

Portable Mixer Patented

The Alsop Engineering Co., of 47 W. 63rd St., New York, N. Y., announces that it has received Patent No. 1,693,170, fully covering the "Hy-Speed" portable electric mixers, with "push-pull" propellers.

"This article deals with the kinds and uses of the various wiping materials used in the finishing departments of modern woodworking plants."—

M. M. Miller

WIPING FABRICS FOR THE FINISHING ROOM

What to use and why—for moistening wood surfaces to raise the grain, wiping off excess filler, rubbing with pumice, wiping after rubbing, straining materials; also the merits of sterilized and bundled rags

By M. M. Miller

THE SUBJECT of wiping rags and materials has been rapidly forging to the fore in the last few years. Many concerns have installed elaborate reclamation systems to reclaim their rags, but while in every finishing room the item of wiping materials is no inconsiderable item of expense, it is remarkable at the seeming apathy of the dealers themselves in exploiting their product and pushing the most suitable material for its particular purpose. To illustrate this point, examine the past copies of INDUSTRIAL FINISHING, considered the leading publication in its field, and try to find an advertisement by a wiping-rag dealer.

The uses of wiping rags in the modern wood-finishing department may be listed as follows:

Starting with the clear water sponging operation, when water stain is used, a soft rag of any sort can be used for this purpose, although a soft sponge of good quality is probably faster and more suitable for this preliminary operation. When an oil stain is used, sponging is usually omitted.

Wiping off Filler

After the stain is put on, filler is then applied. A good material to use to wipe off the excess filler is "garnetted jute" or tow. This is a low-priced material (about $.05 per pound) and is thrown away after being used once. A better material to use for this purpose is commonly known as "lace curtains," which are carried in stock by all dealers in wiping materials. This material costs about $.08 per pound, but it is more suitable than jute, due to its ability to pick up the filler quicker, and the fact that the filler when dried can be shaken out of the rag, and the rag used several times. In tests I have conducted, the lace curtains proved to be cheaper and better than the jute.

After the excess filler is wiped off, a further wiping should be made with a dry rag. This rag can be a cheap colored rag free from hard particles which would scratch the work. Of course, there being no finish yet applied on the surface, the rag does not need to be of as good a quality as will be required in subsequent operations.

The filler is left to dry thoroughly and then the required num-

EMPIRE CHAIR

. . . . . Clips Buys, Saves 25%

Fact-delver Rhea finds way to enrichment.

Delving for facts proves profitable for Empire Chair Company of Johnson City, Tenn. Coupon led to 25% reduction in sealing costs.

MR. LUTHER RHEA, Superintendent, who delves for facts for the Empire Chair Company, clipped and sent a coupon to us last November. On November 10th, he received a sample of Zapon Sanding Sealer No. 1038.

Fact-delver Rhea tested . . . and on November 23rd, bought 50 gallons for a production test. This test record showed a saving of 25% in sealing costs.

Satisfied, Mr. Luther Rhea ordered, on January 8th, 150 gallons of Sanding Sealer No. 1038 . . . since, many a gallon of Zapon.

Here are several potent reasons why Empire Chair and many another famed maker buy this sanding sealer:

The chief reason is that Sanding Sealer No. 1038 can be sanded in one-half the time necessary for sanding shellac. Empire Chair cut sanding production costs 40%. This sanding sealer dries in one third the drying time of shellac . . . that speeds production.

Sanding Sealer No. 1038 sells for a lower price than good shellac. One can, of course, buy film scrap lacquers or substitute shellacs at still lower prices. However, the saving in sanding costs will more than offset the price enticement of these "reputation-ruiners." Before you indict us with our own disparaging remarks about low price materials, we wish to submit two reasons why we offer a good product for little money.

Good quality pyroxylin lacquers command good prices. Sanding Sealer No. 1038 is a good quality pyroxylin lacquer. The reasons why it sells for a low price are: because we can manufacture it on a mass production scale; and because we want the necessary volume of business to keep in mass production. The first reason is explained by the fact that this product can be used on all types and grades of furniture. It is unlike a finish coat lacquer which must be produced in limited quantities due to special requirements of many customers for gloss, body, color, etcetera. The second reason is simply a frank statement of fact.

Zapon Sanding Sealer No. 1038 can be padded in the same manner as shellac. According to Thonet Brothers, Inc., it can be padded better and there is less danger of cutting through when sanding.

The substantial body of this sealer assures perfect filling. Its adhesion is good. It offers a perfect base for lacquer or varnish. It sprays perfectly.

* * *

There are a few other interesting features which could be elaborated upon to help give you a better picture of our product. We believe you would rather test this product on your own work. The coupon will bring to you a free, prepaid, generous sample together with prices and the address of our nearest branch office.

THE ZAPON CO., Stamford, Conn.
Gentlemen: Please send free sample Sealer No. 1038 and prices. I.F.May

Firm Name .....
Street .....
City .....
State .....
Name .....

ber of coats of varnish or lacquer are applied. The finished wood surface is now ready to be rubbed.

Rubbing with Pumice

Rubbing felt is the best material for the rubbing process and is usually used with oil and pumice stone. In order to tone down the finish, ordinary burlap is very suitable. In the absence of felt, burlap can be used for rubbing, but the finish will not be as fine as when felt is used.

Wiping After Rubbing

The rubbing completed, it is now necessary to wipe off the oil or water—whichever "rubbing medicine" may have been used.

A soft waste can first be used to wipe off the excess liquid. This material should be absorbent, and care should be taken that it is free from hard matter such as needles, splinters, etc. Further wiping should be done with a soft rag, and I recommend soft underwear for this purpose. This can be purchased unwashed for about 0.13 a pound, and is a very satisfactory material, being absorbent, having little lint and giving a fine polish to the finished surface. This same material can also be used for the final wiping of the finished surface.

Straining Cloths

The only other use for a fabric in the finishing room is for straining purposes. For the straining of lacquers and stains, I have found the most suitable material to be unwashed sugar liners. This is the lining found on the insides of sugar bags. This material is reasonable in price, comes in pieces large enough to go over the head of a large lacquer container, has strength so it will not break through, and presents the right pore space desired. When this material is washed in a laundry, the pores close too much and a lint forms which may get into the material being strained and then clog the spray guns or be sprayed onto the finished surface.

Sterilized and Bundled

The question of whether to buy unwashed or washed and sterilized material is an important one, as there is a great difference involved.

The larger plants—for purposes of protecting their men and keeping up the morale—are using sterilized fabrics. Part of the increased cost for sterilized rags is made up for in the increased amount of rags per pound obtained and also in the greater absorbing power of washed and sterilized materials.

The modern dealer, for an additional charge of one cent per pound, will put up the rags in bundles containing approximately 1-lb., 3-lbs. or 5-lbs., whichever may be desired. This method of buying rags may, in many plants, more than pay for itself because, 1—the amount used on a job can be easily calculated, 2—there is less loss in rags being dropped when carried from place to place, and 3—there is no chance for the workman to pick out only the finer larger rags, leaving the smaller pieces which in themselves cannot be easily used.

All in all, the subject of wiping rags is a large one—large enough to be investigated in detail by all finishing foremen, so that the most suitable material may be obtained for the lowest price.

Murphy's New Sales Manager

At a meeting of the Executive Committee of the Murphy Varnish Co., held March 27, 1929, Mr. Harold W. Lay was appointed General Sales Manager. For a number of years Mr. Lay was Vice-President of Murphy Varnish Co. of Canada, Ltd.

Place your confidence in

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A Lacquer, Varnish or Japan especially made for a specific purpose for finish on Wood, Iron, Steel or Aluminum

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"I have your letter containing Mr. Shuping's inquiry as follows:

"'I would like to know how to clean and refinish a very old violin made in 1732, and where could I get the proper kind of stain and varnish for this instrument?'"—

Chas. W. Gray.

REFINISHING VIOLINS

An expert on old and new violins explains in detail how to inspect an old violin for a refinishing job, how much of the surface to clean, how to clean it, what to use and how to proceed with the finishing through the final polishing

By Chas. W. Gray*

THIS IS a difficult question to answer without seeing the violin, as a great deal depends on the condition of the instrument, the kind of varnish originally used and the amount of old varnish still left on it.

If it really is a valuable old violin made in 1732, then it is quite safe to assume that what is left of the old varnish is of good quality, and the proper procedure would be to carefully clean off the old dirt and rosin where the varnish is intact. Clean the grease and dirt from the bare spots and then, without any attempt to remove any of the marks of age, put a special filler on the bare spots followed (on the bare spots) by about three coats of oil varnish made especially for violins. This would be followed by two coats of the same varnish over the entire instrument.

Valuable Old Violins

No attempt should be made to completely remove the old varnish, scratches, etc., and revarnish so as to give the instrument a new appearance, as such a proceeding would seriously detract from the value of the violin. Violinists and connoisseurs greatly value the aged appearance of violins, and any modernizing—aside from a new neck graft to adapt the instrument for modern use, and necessary repairs and restorations—is frowned upon by all real lovers of the violin.

However, only about one in a thousand violins bearing a date of about 200 years ago is a genuine old instrument. Most of them are

*Maker of high-grade violins and 'cellos. Scientific repairing a specialty. Brisben, N. Y.

Expect different results from a different remover

If Lingerwett were made from the same materials, to the same formula, and by the same methods as other removers, you would expect about the same results.

Don't! Lingerwett is very different. The results are very different. If you have not found that out, you owe it to yourself to do so. It means *money saved*, to say nothing of a neater and very much easier job.

The Wilson-Imperial Co., Newark, N. J.

LINGERWETT REMOVER

By all odds the quickest and easiest known way to remove paint, varnish, shellac, lacquer, and enamel from old surfaces.

of a later period with fake labels. Some of these later instruments are covered with good quality oil varnish which would be well to preserve, but most of them are finished with a spirit varnish or a cheap varnish composed mostly of rosin and turpentine. This latter varnish is readily detected by the white marks wherever it has been bruised or scratched, and it will powder if lightly scratched with the thumbnail. It is best to remove such varnish and refinish with good oil varnish, as the tone of the instrument will be greatly improved.

Removing Old Varnish

Skilled makers and repairers often remove old varnish with specially shaped steel scrapers, but this requires proper tools and considerable experience, and I would not advise the beginner to attempt it. A safer plan would be to use a commercial varnish remover, or one made up as follows:

Acetone	3-oz.
Benzol	4-oz.
Denatured alcohol	8-oz.
Paraffin wax (shaved fine)	¼-oz.

Mix cold and dissolve the wax by setting the container in boiling water placed well away from any fire. When ready to use the material, warm it by setting the container in hot water (any varnish remover works best when warm); shake well and apply to back of violin with a soft brush.

In five to ten minutes the varnish will be softened and can be wiped off with coarse waste or burlap. Next treat the top in the same way and finally the ribs and scroll. It may be necessary to apply a second coat to obstinate spots. Then scrub off with turpentine or gasoline to clean up; also to neutralize the remover and prevent it from injuring the wood. When thoroughly dry, smooth up the surface with dry sandpaper No. 4/0 to 6/0.

Some old violins have been treated with a filler which the remover will not affect and these will not need to be refilled. If, however, the wood appears like new wood and readily absorbs water, then it would be well to apply a thin coat of the filler, for which I will later give the formula.

The above process is for the cheaper grade of violins, but we will assume that Mr. Shuping has a genuine old instrument and I will give the proper treatment for it in detail. First comes the cleaning process, for the top, ribs, and possibly some places on the back and scroll will be covered with a black substance which is composed of old rosin, grease and dirt.

Cleaning an Expensive Surface

Put 3-oz. of warm water in an 8-oz. bottle, add about ½-oz. of brown soap shaved fine, and shake until soap is dissolved. Then add one tablespoonful of vinegar, one tablespoonful of fine pumice stone, 1-oz. of lubricating oil, 1-oz. of gasoline and ½-oz. of denatural alcohol. Also add a sufficient quantity of patience and elbow grease and prepare to devote from one to three hours to the cleaning process.

Take a wad of fine waste, hold it over the mouth of the bottle and shake until the mixture is completely emulsified. Then apply to the dirt, keeping away from bare spots where the varnish is completely worn off. Continue rubbing and apply more of the cleaner (be sure to shake the bottle frequently) and the dirt will finally soften up and come off. If the mass is very thick, particularly under the strings—or rather where the strings have been, for you will of course remove all fittings—and

if you will promise to be real careful you may gently scrape off some of it with an old knife, but *stop the scraping before you get down to the varnish!*

Clean the bare spots with fine pumice and water; if they are very greasy, use a little denatured alcohol. Finally, clean all over with gasoline and finish with cold water applied with a chamois skin. If there is much exposed bare wood, be careful with the water. A little will do no harm but too much will cause a lot of trouble.

Filler for Bare Spots

When the surface is thoroughly dry, you are ready to apply filler to the bare spots. This is made by putting powdered gamboge in a small bottle until it is about one-third full. Then fill the bottle with denatured alcohol and set in a warm place for a day or two, shaking frequently. Allow it to settle, and pour off the clear liquid; this makes a fine filler which could be used by finishers in other lines of fine finishing.

Apply the filler with a small camel's hair brush. Work it gently up to the line of the old varnish and quickly rub off any surplus which might get on the old varnish. Let dry at least four hours. Then smooth down carefully with No. 7/0 polishing paper used dry; clean off the dust with a damp chamois and as soon as the surface is thoroughly dry you are ready to apply the first coat of varnish.

Valuable Violin Varnish

Colored oil violin varnish* is used. This varnish is soft and flexible. It is not heavily charged with opaque color like ordinary colored varnishes, but the desired color is built up by repeated coats, and the varnish is so transparent that the grain of the wood is not obscured. Stains are not used in high-grade violin work, but some makers use a chemical stain to enhance the beauty of the curly maple and dull the color of the new wood; however, this can be used only on new work.

*Source of supply on request.

Color; Rubbing; Polishing

No attempt should be made to exactly match the color of the old varnish, but an amber or golden yellow shade should be selected. In some cases a considerably lighter shade of the same color as the old varnish can be used. It is applied much thinner than ordinary furniture varnish, being reduced to the desired consistency with pure turpentine which has been exposed to the air in an open container for several weeks.

Each coat may be rubbed down with fine pumice and water applied with a piece of fine felt. Wash off with fine waste and water, and finish up with a wet chamois. Do not put on the next coat until the thumb can be held on the varnish for one minute without leaving an imprint.

The last coat should be rubbed down with pumice and oil, using felt to smooth it down, and finishing with very fine waste used with the pumice and oil. The object of this treatment is to remove the gloss from hollows and depressions not touched by the felt. If a high polish is desired, let dry for 48 hours and polish with rottenstone and thin oil applied with silk waste. Clean off with an old silk handkerchief and give the final polish with the palm of the hand.

It is seldom possible to obtain a perfectly level surface on an old violin and it should not be attempted.

COMMERCIAL VEHICLES

Director of Duco Color Advisory Service declares that "with the increasing use of individual and striking color schemes in motor cars in general, the days of the old-time black commercial vehicle are about over"

By Howard Ketcham

CONSIDERABLE attention has been given during the past year to the refinishing of busses and delivery wagons. Several things must be considered in providing an attractive and suitable color scheme for such vehicles. Much depends upon what the purpose of the vehicle is. Vivid red is a suitable color for a fire engine, but it would not be so appropriate on a florist's wagon. Old fashioned common sense will dictate the proper viewpoint to every owner.

Certain types of delivery wagons with closed bodies and severe body lines call for colors that will not accent the unattractive features of the design. In this connection, cold, dark shades of blue and dark chocolate browns are excellent colors. Good examples of these colors from which to choose are: Overland blue, Byram blue, La Tosca blue and Gettysburg blue; Thorne brown, Lackawanna brown, Rich Loam which is a gray brown, and Fallowfield brown. Both the dark blue and the brown take silver, gold, cream, vermilion and orange as a trim or lettering color.

For Florists

The attractive appearance of any colored object is accomplished by close attention to detail. Visibility is an asset to attention value in this type of vehicle and, as such, it warrants careful consideration in using the secondary or accent color to marked advantage. Business concerns in all sections of the U. S. are commencing to appreciate the appearance value of their delivery conveyances. Shades of orchid, violet, rose and delicate blue tints have been adopted generally by the florists as symbolic of their trade. Each florist has been able to use secondary and tertiary colors in such a way as to assure individ-

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Photograph for cut at top of page furnished through courtesy of Austin H. Davidson Co. Inc. (Truck Painting & Lettering), Indianapolis.

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uality for his own vehicles and in this way he has been able to establish trade-mark value for his wagons.

Garish colors for business vehicles are now passé. We have begun to agree with the early Egyptians that harshness and lack of harmony offend, but that brilliance and richness can be effected in good taste. Early colorists studied nature for their color schemes and learned how to create subtle harmonies. Nature still teaches us. The attractive color grouping in the orchid, the subdued green and blue of earth and sky, the rare colorings of birds and fish, the hues of precious stones, all these supply us with hints for the use of colors.

Laundry Wagons

Laundry wagons look crisp and attractive in white, pale yellows, light blues and tints of green. Such colors as yellow violet, Cinderella gold, brilliant gold, Storm Cloud blue, (darker than Mist blue) Mountain Mist blue (blue with considerable gray) Bay Tree green, Verdancia green, light green, and Water-Glo green lend themselves effectively to the decorative motif. Blues may be used effectively on white or yellow base colors. White contrasts splendidly when used on blue and green, yellow or pale gold. Bronze is effective on pale greens similar to those described above.

Motor Hearses

The growing use of motor hearses has given rise to some perplexity as to what may be done with them in the way of color. The feeling is that, just because hearses have always been black or white is no reason they always should be those colors—any more than just because fenders were black for a long time, they must remain black. One of the newest types of motor hearses seats about 30 people and carries the casket as well.

Such busses may be lacquered in dark blue or one of the maroons, and still be proper to the spirit of their use. Lanvin maroon with black and gold is in good taste, as also are Pomerang brown and Pyramid gray with a black stripe on the brown, or Pewter Pot (cold green gray) and blue gray trimmed with silver, or Rancocas Beige and light Frast maroon with gold on the maroon, or Dusk rose with silver and black or silver and Lanvin.

Specialty Shops

Men's and women's specialty shops are using properly combined colors to express the feeling of their services also. Many of them are tasteful and distinctive and seem to express the meaning of the vehicle very well. Browns and beiges, the popular colors of the year, predominate. Some examples in favor are Rust gold and Premet dark tan with gold lettering on the tan, Metropole and Rendezvous gray with silver lettering on the gray, leaf brown and Prairie grass with black or yellow on the Prairie grass.

Kelvinator News

Earl Lines, for the past three years advertising and sales promotion manager of the Leonard Refrigerator Co., Grand Rapids, Mich., has been appointed director of advertising and sales promotion of the Kelvinator Corporation, Detroit, succeeding J. A. Corcoran, who has been appointed manager of the New York branch of the Kelvinator Sales Corporation.

The Leonard Refrigerator Co., of which he was formerly advertising and sales promotion manager, is the cabinet division of the Kelvinator Corporation. Production and shipments by this division showed an increase of 32 percent the last six months.

To help sell your product

To be of any use to you Sherwin-Williams Varnishes must help sell your product. We consider it our job to furnish you the correct finish.

On our staff are technical men who understand shop production. They spend practically all their time in the shops of our customers doing two things:

1. Determining with you the exact kind of a finish your product needs;
2. Helping to establish your finishing system on the most economical basis.

Our line of varnishes is as complete as our knowledge and experience can make it. But when the precise varnish for your requirements has to be a "special," you get that "special," not a makeshift.

Beauty is said to be only skin deep. However that may be, it is *certain* that the handsomest wood and best craftsmanship appear no better than the finish which covers them. Equally important: the finish must stand up to wear after it is in service to the customer.

Let the beauty of Sherwin-Williams Finishes help build your sales, while their enduring quality helps sustain the integrity and good will of your own name.

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Controlled Humidity in Finishing Rooms

Why humidity, or the relative moisture content in the air, is so important in connection with industrial finishing, some of the troubles that are traceable to "unbalanced" air conditions, and how to control humidity

By E. B. Smethers

RELATIVE humidity is a major factor in the drying of paints, varnishes and lacquers, but unless it is understood there is little value in having methods at hand for controlling it. Relative humidity is defined as the percentage of moisture in a cubic foot of air at a given temperature, as compared to the maximum amount of moisture a cubic foot of air can carry at a given temperature (or the saturation point at this temperature).

It is generally known that the lower the relative humidity, the greater the capacity of air for absorbing vapors given off by paints, varnishes and lacquers during the drying stage. When the surface drys faster than the undercoats, checks and cracks develop later. On the other hand, if the air is heavily laden with moisture, (that is of a high relative humidity), vapors cannot be readily absorbed, and slow drying results.

Varying Moisture Content

Humidity causes hardships to the finisher in several other ways, and in different seasons of the year. For example, he has grief in the summer because of lacquers blushing. During the summer months the air at times is heavy with moisture, and when lacquer dries (when its solvents evaporate), the air is cooled and moisture will naturally be condensed on the wet or drying surfaces. Lacquer in liquid form gives up or precipitates its cellulose upon coming into contact with moisture, therefore this condensation of moisture upon a wet lacquer film will cause precipitation of the "cotton" in a grayish colored blush.

The blooming or turning white of shellac is well known to most finishers. This also is traceable to humid weather, since shellac, having an affinity for moisture, will draw it from the air. A white effect results and if the first coat, while in this state, is then covered with a second coat, the moisture is sealed, but will sweat out at a later date.

A different problem is encountered in the winter months—namely, the checking of veneers. This is of as much importance to the finishers—and perhaps more so—than to anyone else, but the basis of this fault is not under his control.

Veneer Checks

Granting that the best veneer is purchased and that there are no signs of checks during warm weather, some of these veneers during the winter may show fine checks after the lacquer or varnish has been applied and perhaps after it has been rubbed.

The best shellac is best next to wood

DU-PROS Shellac is strictly pure. More than that; it is actually better than ordinary shellacs, because it is made by an extra process that gives it extra quality. Du-Pros contains only high grade shellac gum and Government test alcohol. The double process of making removes all dirt, grit and foreign matter—and leaves instead an increased quality. Du-Pros is best next to wood.

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Veneer, I understand, is laid as nearly dry as it is possible to lay it; nevertheless there is nearly always a small percentage of moisture present due to the moisture being taken up from the air or from the glue when freshly glued veneers are put under pressure.

During the summer months there is a reasonable humidity in the air which minimizes the danger of shrinkage and checking. On the other hand, during the winter months, the outside temperature being low, the veneer carries very little moisture. At freezing temperature the air can carry only two grains of moisture per cubic foot. Now if it enters a room where the temperature is 70-deg. F., it will have a relative humidity of from 25 to 40 percent. The condition just outlined is good for the drying of paints or lacquers, but not for veneers which might carry from 6 to 8 percent moisture content. Even in a room of only 70-deg. F., with its low humidity, there must be a strain on the veneer and if it is not free to shrink, fine checks will usually develop.

Dry Air Unhealthy

This dry condition of the air not only saps the moisture from veneered panels, but also from the workmen, showing its effect in the form of hard dry skin and a parched throat. This same condition is also noticed in homes where artificial heat is used without provding means for adequate moisture to enter the air. Dry air often carries large quantities of germ-laden dust. The parched and dry condition of the throat and lungs provide fertile spots for the infectious disease germs.

The relative humidity of the air can be determined by the wet and dry bulb thermometer. Upon finding the relative humidity that is most desirable, means should be provided by which this condition can be uniformly maintained.

Humidity Control

The most valuable system is one that enables the relative humidity to be varied as requirements change. In some shops steam is allowed to escape into the room to load the air with moisture; in others pans of water are placed on radiators. Pails of water placed in a room will increase the moisture content of the air, but it would take a number of these to change the relative humidity from say 8 to 40 or 50 percent. These makeshifts are also very hard to control.

Some systems for controlling the humidity include devices that are attached to the heating system. They work automatically, opening and closing valves to allow steam to escape into the air as needed.

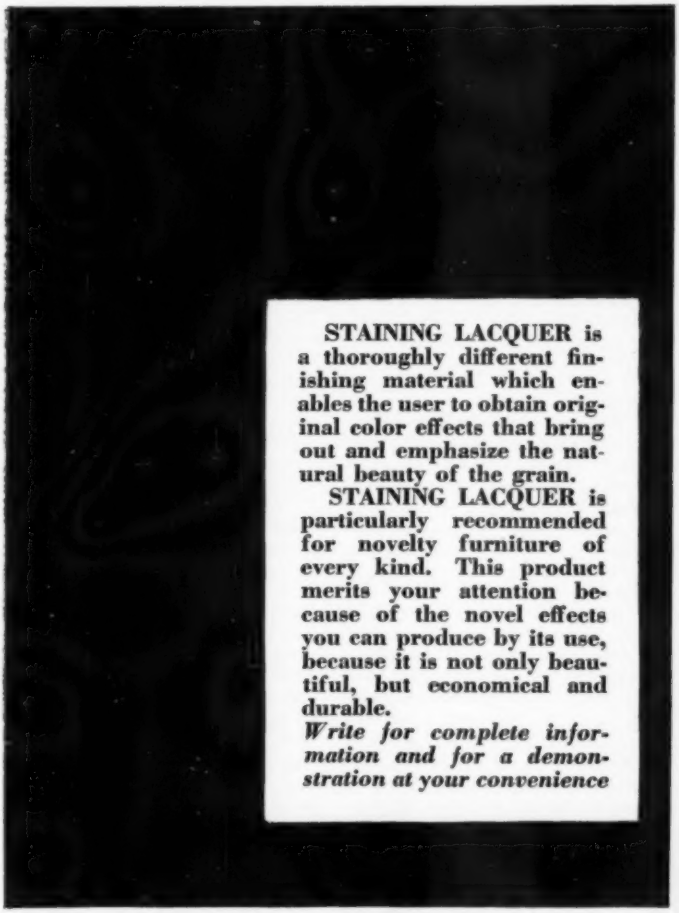
This equipment is comparatively inexpensive and should not only be in finishing rooms but in other departments of the plant; the more healthful and full-of-pep condition of those working in rooms of regulated humidity increases production, besides eliminating certain manufacturing troubles that come from air either being over-loaded or arid as to moisture content.

Du Pont Radio Program

On April 9, a country-wide radio broadcast campaign was inaugurated by the Paint and Varnish Division of E. I. du Pont de Nemours & Co. A program on Duco, consisting of musical numbers by the Duco Instrumental Trio and a short talk on home decoration sponsored by the Du Pont Home Decoration Service, is being broadcast through a network of 33 stations, including WJZ and associated stations.

The program goes on at 10:30 A. M. Eastern Standard Time and at 11:30 A. M. Pacific Time for Mountain and West Coast stations. The campaign will run Tuesday mornings for ten weeks.

STAINING LACQUER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LACQUER REDUCERS

Emphasizing the importance of carefully choosing and using reducers especially suited to the lacquers employed, and citing an instance of a peculiar trouble that developed and how it was remedied by changing the lacquer reducer

By R. L. Masterson

IN THE manufacture of nitrocellulose lacquer finishing materials, it is customary to dissolve the nitrocellulose and the gums or resins in a suitable combination of solvents. There is a long list of solvent and non-solvent liquids used for this purpose.

Not one of these liquids is used alone, but a combination is used which will give the proper solvent action on the nitrocellulose and on the gums, as well as the right scheme of evaporation to insure easy application, a smooth surface and freedom from turning white or blushing upon drying.

Some liquids which are solvents for nitrocellulose are not solvents for gums; likewise, many liquids which dissolve gums will not dissolve nitro-cotton. It is quite an art to get the proper proportion of the various liquids necessary to hold both types of materials in solution and at the same time give the other desirable features. The question of proper solvent combination is one of greatest importance in making lacquers. Usually the solution of gums is made separately from the solution of nitrocellulose, and the two solutions are then blended together.

Carefully Proportioned Reducers

Some lacquers, especially clear wood lacquers, are made with the proper porportion of reducers already incorporated to allow them to be applied full body, just as they come from the package, while others must be reduced or thinned with a certain proportion of reducer before being applied.

Lacquers containing pigments are usually shipped at quite a heavy consistency to lessen the danger of the pigment settling, and they are reduced before application. All lacquers when allowed to stand exposed to the air for some time lose some of their solvents through evaporation and take on a heavier body. In such cases a quantity of reducer must be added before the bodied-up lacquer is used.

Since it is necessary at one time or another to use some lacquer reducer with practically all lacquers, it is of extreme importance to use the proper reducer with each material. The solvents in each type of lacquer have been carefully chosen and blended in the proper proportion to give the best results and the reducer best suited for one lacquer may not be of the proper type for another lacquer.

It has always been my contention that only the reducer supplied and recommended by the manufacturer of the lacquer should be used for reducing that particular lacquer, for the reason that the ingredients of the reducer and of the lacquer may not work together to the best advantage, unless the reducer is especially blended by one who knows all the contents of the lacquer.

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— rubs to a beautiful lasting lustre
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And low in price!

¶ Just to prove our claims for this varnish we want you to test it. A letter or wire will bring you a generous sample.

¶ And don't forget. Valentine's expert chemists and technicians are constantly at work in their vast laboratories developing and improving all types of varnishes, enamels and lacquers to the ultimate benefit of your finished product.

¶ Don't hesitate to call on Valentine's Technical Staff to help solve your finishing problems. Their service is yours for the asking. Address your inquiry to:

Industrial Division, Valentine & Company
386 Fourth Avenue, New York, N. Y.

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Low Priced Reducers

Sometimes it is a temptation to buy low-priced reducers instead of those recommended by the manufacturer of the lacquer. Under certain conditions some of these reducers apparently work satisfactorily but under other conditions they may cause a great deal of trouble.

Many users of lacquers seem to have the idea that all reducers are equally serviceable, regardless by whom they are made, and that the difference in price is simply due to the fact that some people can get more for a given product than others. The truth of the matter is that "you get what you pay for" in lacquer reducers as with all other commodities.

The lower priced reducers may cost less per gallon but often they cost more on the work in rubbing time, poor results, blushing and other such troubles, than would a reducer that is sold for a few cents more per gallon.

As an illustration, taken from actual practice, a final coat of lacquer enamel was applied on an automobile body on a very damp morning when the humidity was quite high. Instead of the finish drying out to a nice blue shade, as it was supposed to be, it was a grayish white color. A coat of the same reducer used for thinning the enamel was applied in an effort to remove this "blush," but it merely made matters worse.

On investigation, it was found that the reducer used was a low-priced one that had been purchased to save a few cents per gallon. Upon substituting the reducer recommended and sold by the manufacturer of the lacquer, the trouble disappeared.

Different reducers are usually recommended for different methods of application; thus there are spraying reducers, dipping reducers and brushing reducers. Sometimes a different reducer is recommended for clear lacquers than for colored lacquer enamels. The only safe way to avoid trouble is to use the reducer recommended by the manufacturer of the lacquer.

Care of Work Tickets

In most factories the routine details of production are directed by work tickets which accompany the material in process. Naturally it is important that the work ticket remain readable and in good condition and, above all else, it must not be lost.

A lost work ticket not only interrupts the progress of the work in process, but frequently it encourages guess work on the part of certain workmen and this in turn results in mistakes that prove costly to the management.

One large plant has solved the problem of preventing work tickets from being lost. It is the rule here that the workman who attempts to pass a job along to the next operation without a work ticket is fined ten cents. This small fine serves as an effective reminder to make the men more careful about work tickets which accompany the various jobs in process.

In the finishing department, the work ticket sometimes becomes so soiled that it is unreadable. Different concerns have remedied this condition in various ways. One of the most satisfactory plans is to provide a small filing box or drawer where the ticket may be kept clean and safe while the job it accompanies is in the finishing department.—V. F.

PROFITS may become losses when your finishing production lines are slowed up or stopped. Dollars and cents are daily involved in keeping traffic moving. Glidden systems of finishing are planned to make possible continuous progress with maximum satisfaction. Glidden experience is yours to command in keeping your production line clear.

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Show Window Woodwork and Fixtures

How the solid framing and large veneered panels of an all-walnut show window job in Louisville, Ky., were finished to produce a beautifully rich and enduring finish of guaranteed quality

By T. R. Nall

IN FINISHING the interior woodwork and display fixtures for show windows, one must be fortified with experience and a complete knowledge of all the conditions peculiar to this particular line of work, if he expects the finish to hold up as well as the finish on ordinary interior woodwork.

First of all we must remember that all show windows are subjected to conditions of extreme heat and cold at different seasons of the year. All the different changes in the weather—heat and cold, dryness and dampness—act upon the finish. Regardless of how well the plate glass windows have been put in and sealed, some moisture will find its way into the show window and then, when the sun comes out again, this moisture forms a steam or vapor in the show window space, and an ordinary finish will not stand up under such conditions.

A finish that will stand up under these very severe conditions was put on the job that I finished recently for H. P. Selman & Co., (women's apparel) Louisville, Ky. This is a natural finish on walnut, and the windows extend over a distance of a square and a half. All of the panels are veneered and they range in sizes up to 10 ft. square. All of the frame work is of solid walnut.

In the white, some of these panels had a streak of sap running through the center. I had a great deal of trouble making this light sap wood match the heart wood—this for several reasons. The first thought of an experienced finisher is that since the finish is natural, the veneer has a reddish cast and some of the sap would match up when treated with a reddish-tone water stain; and so it would, but at the same time other pieces of it actually did come up black when treated with the same stain.

To overcome this peculiarity, some of the sap wood had to be specially treated with two or three kinds of water stain powders—and of course this took a great deal of time and care and expert matching, which I wouldn't care to go into detail about at this time.

Fast Color Stain Required

One fellow suggested using oil stain or spirit stain, and that I wouldn't have any difficulty in matching the sap. I knew about this of course, but we guarantee our finish for a certain length of time. The thought that I want to bring out here is that if I had used the oil or spirit stain in this show window job, in about one year the sun would have drawn out this color and the sap streaks would then be as noticeable as they were before the wood was finished. So you see this would be expensive

for us, as it would call for a refinish job, so this is why I chose to use water stain because *it is fast to light.*

All of the panels for this job were set in frames. Now one problem is to keep these panels from shrinking after they have been put into the frames and nailed up and finished. To overcome any difficulty along this line, I have found a very good remedy: Before the panels are set in the frames—if the finish is natural—wash coat the panel; this gives color all over the panel. If the finish is a stain finish, one should water stain the panel before it is put into the frame; then if the panel shrinks from the frame work, you have the same color under the frame.

The point I want to emphasize is that it is very difficult to retouch the bare edges to match the remainder of the panel after the panel has shrunk from the frame work. This shrinkage often occurs in show windows because of weather conditions. The back side of the panels should have a coat of heavy asphaltum paint.

At the start of this finishing job, I used one coat of bleaching lacquer* cut half and half with 190 proof alcohol. This we sprayed on and let stand four hours, after which we sanded the surface. For the second coat we used white shellac cut in the proportion of two parts of shellac to one of alcohol. This was allowed to dry five hours and then the surface was sandpapered.

Next came a recoating with the same shellac; this dried about eight hours and was sanded to a very smooth surface and was then polished up with No. 00 steel wool. Finally we applied a thin coat of hot wax* and polished up with

*Manufacturer's name on request.

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cheesecloth—or some other soft material would do for this.

No Filler Used

Wood filler is omitted altogether in this job because all surfaces exposed to the sun shouldn't be filled. The filler decomposes and crumbles under the prolonged and intense action of the sun's rays and the effect of the extremes in temperature. So much for a few of the difficulties that a finishing foreman runs into in a store fixture factory.

This finish is durable under the conditions I have mentioned. Many conditions govern success in finishing, but the most important thing is to select the right kind of finishing material for each purpose. The kind of wood surface, the conditions it will be subjected to and the length of service expected of the finish—all these things should be fully known. Then, when the finisher also knows the essential characteristics of each of the more common finishes, he is in a position to select the right finishing material for each job.

After woodwork finished up in this way has been in service, it can be cleaned up from time to time with a rag slightly moistened with paraffin oil or liquid wax; never use linseed oil! To give satisfactory service from the standpoint of cleaning and appearances, the wax must be polished by friction to a high gloss, and this can only be done when it is not warmer than the normal 70 or 75-deg. F. One pound of paste wax will cover about 130-sq. ft. in one coat.

Spar Varnish Finish

Another good finish for show windows is "spar varnish." It is waterproof, tough and positively will not turn white. Be sure that

the surface is free from dirt and all sandpaper dust. Apply one coat of spar varnish cut half and half with turpentine, and allow about 12 hours for the finish to dry. Sand down very closely with No 5/0 or 7/0 sandpaper. For the second coat, cut the varnish with one part turpentine to two parts varnish. Let this coat dry 24 hours, and sand down very closely as before. Apply the third coat of varnish just as it comes from the drum or barrel. Let this coat dry 24 hours; then oil rub. This finish will stand up under any weather conditions.

My next article will be about "Tudor English Finish on Fireproof Oak."

Finishing Desk Turnings

In the office desk factory of the Stow-Davis Furniture Co., at Grand Rapids, Mich., each part of the combination wood and metal desks is finished separately before the desk is assembled. For example, the turned wood feet are finished in a very novel way, perhaps in a way that is different from what has heretofore been used.

The feet, after coming from the turning lathe, are sanded smoothly and are then returned to a special lathe where they are filled with silex filler. The operator loads his brush with filler and, as the turning revolves slowly, he applies the filler. The turned foot is then removed from this lathe and passed on to another workman who also places it in a lathe and, using a brush, cleans the surplus filler from the foot as it revolves.

This novel method was originated by the foreman finisher and his associates, and it enables the department to satisfactorily fill

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PURE SHELLAC

The word "Shellac" standing alone on a label may mean little. But "Pure Shellac" on an Association member's label means that his product has not been adulterated and that it measures up to the rigid standards of the American Bleached Shellac Manufacturers Association. We, E. T. Stille & Co., are Association members.

Pure Shellac, due to its many uses, is widely imitated. We, too, have a complete quality line of Shellac Compounds, Finishing Lacs and Shellac substitutes, as fine in quality and as economical as any on the market.

But naturally, they do not come up to the real product. We all get just what we pay for and only you can decide just what will best fill your specific requirements.

We, in turn, can furnish it at a price that is attractive. Stille users are Stille boosters.

Immediate deliveries are assured from our factories and warehouses located at convenient shipping points.

Samples and prices will be gladly furnished.

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Southern Office and Factory
High Point, N. C.

The Blue Knight's Column

AS ONE of the song hits has it . . . *"That's what you get folks, for mak-ing WHOO-PEE . . ."*

And see what I get . . . for giving SER-VICE . . .

" . . . this shipment of lacquer was actually in our plant at 2 o'clock this afternoon. When it reached here we were within two hours of being out of lacquer . . . the writer does sincerely appreciate what you have done for him . . . "

You know, "service" is a magnificent word when it labels something actually given or received, instead of something just rumored about . . . something dragged in by the heels into sales talks, and thereafter left standing shivering outdoors!

If you are very, very busy . . . overloaded as a matter of fact, you have to be careful or the service you brag about will boomerang with the power of a mule-kick. If you jam a laboratory, its service gets poor.

Right now, my Lab is loaded. Any more problems undertaken would hurt the service . . . and I'm too fond of rendering good service to permit anything to injure it.

So, for the present I can take on no more new propositions. However, I can send you research bulletins on some of the materials we already have produced for manufacturers. Write to the Technical Sales Department, please, and let us know if you are interested in any particular problem.

The Blue Knight

ROXALIN FLEXIBLE LACQUER COMPANY
109-9 SEVENTH AVENUE
LONG ISLAND CITY

the turned feet and wipe them clean very rapidly.

After the filler has been wiped off, the feet are placed on a tray of spindles and the lot of them are put on a conveyor which carries them past a sprayer who sprays each foot as it slowly passes by. Built around the conveyor is an oven, and as these feet pass through the oven they become dry enough to be handled by the operator at the end of the oven. He takes the tray of feet and returns them to a lathe. The lathe operator places them in this machine and rubs them down with steel wool as they revolve slowly. The feet are then ready for the assembly room.—J.C.H.

Waukegan Chemical Co. President Died April 25

A letter from Waukegan Chemical Co., Waukegan, Ill.: "We announce with great sorrow the death of our president, Dr. Rudolph Breves, which occurred at 2:30 this afternoon, (April 25) after a lingering illness. As Dr. Breves was well known in the lacquer and allied interests, we inclose an obituary notice for publication in your columns."

Rudolph Breves was born in Osterwald, Germany, on December 23, 1867. After the completion of his education in Europe and the U.S., he became plant chemist for the Gelsenkirchen lacquer plant in Germany.

In 1899 he came to this country to be the chief chemist of the Egyptian Lacquer Mfg. Co., and he retained this connection until 1915. He was then identified with educational institutions and industrial concerns until the founding of the Waukegan Chemical Co. in 1919. Dr. Breves was president of this company manufacturing Brevolite lacquers until his death.

He held the following degrees: Ph.G., Ph.B., A.M., Ph.D. He is survived by his wife and two children, Ruth and Laurence, his brother Harry, of Jersey City, N.J. and his sister, Alma.

Impervious Varnish Moves

Effective April 25, 1929, the Impervious Varnish Co. announces the removal of its general offices to the 22nd floor of the new Koppers Bldg., 436 Seventh Ave., Pittsburgh, Pa. The telephone number "ATlantic 0215," remains unchanged.

NEW MATERIALS AND EQUIPMENT

Presenting briefly, certain outstanding features of new materials and improved equipment which have been developed for use in modern industrial finishing departments

Small Portable Spray Outfit

The Gast Mfg. Co., (portable spray outfits and equipment), Bridgman, Mich., has added the "Spray Master," a complete spray outfit to its line of portable spray equipment. Excerpts from the description of the "Spray Master" in the new Gast booklet "Air Painting at Its Best," are as follows:

"The Spray Master weighs only 75 lbs. and delivers to the nozzle of the gun a positive non-varying air volume of 5 cu. ft. per minute . . . . It will apply all kinds of paints, varnishes, enamels, lacquers and even water plastics, in volume. For automobiles, furniture, signs, radiators, panels, or for residence interiors and exteriors, store rooms, steel ceilings, etc., it . . . . . ." is remarkably effective.

"The Spray Master makes a beautiful fan spray 4 to 5 in. wide, or may be quickly adjusted to run a narrow ¼-in. line. The operator regulates both air pressure and paint supply right at the gun. He never "runs out of air"—never has to stop for pressure to build up; he simply fills the pressure tank with the material, plugs in the nearest electric socket and he is ready to do a perfect job of air painting.

The "Spray Master"—"baby" of the Gast line.

Test Panel-ettes Aid Color Matching

A new product announced by R. P. Cargille, 26 Cortlandt St., New York City, consists of a book of 100 thin transparent impervious flexible sheets which can be utilized for furnishing permanent visual records of tests of samples involving such characteristics as drying, gloss, color, shrinkage, flexibility, opacity, suspended matter, brushability, sprayability, dipping qualities, etc., of stains, lacquers, varnishes, enamels, paints and shellacs.

A typical

"Ty-Loid"
Lacquer
Enamels

and Undercoatings

We manufacture a complete line of Primers and Surfacers in oil and pyroxylin, and a complete line of colored Lacquer Enamels.

Our No. 91 Brown Oxide Primer is an Oil Primer composed of best oil and iron oxides, which are the best preservatives for metal. No. 91 Brown Oxide Primer will force dry in a few hours or will air dry over night. It is neutral to our No. X-C. 100 P-X. Oxide Surfacer or Lacquer Enamels, and does not bleed when colors are applied over it.

Our No. X-C. 100 P-X. Oxide Surfacer is heavy bodied, requiring a fifty-fifty reduction and is ground fine in pebble mills to give a smooth surface when sprayed. It requires little sanding to surface ready to lacquer over. There is no swelling of undercoat when lacquer is applied; therefore, no shrinkage in file and surfacing marks after the finish is completed.

A trial order of these goods will convince the most critical and make you more friendly with our line.

Manufactured by

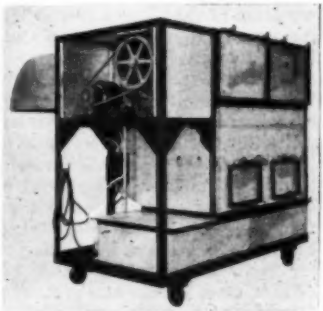
The Western Reserve Varnish Co.

1251 Marquette St. Cleveland, O.

test sheet or panel-ette measures 2x4⅞-in., and has at one end a "marking space" of ⅝x1½-in., which is specially treated to receive soft pencil marks (record data). An entire book of 100 R. P. C. panel-ettes measures less than ¼-in. in thickness, and the back of the book contains complete directions for using and preserving the thin test sheets.

Portable Lacquer Booth

The Grand Rapids Blow Pipe and Dust Arrester Co., 526 Monroe Ave., Grand Rapids, Mich., announces "a portable air-washed



The new portable lacquer spray booth.

lacquer booth. This booth can be moved from place to place where it is impossible (or undesirable) to move the article that is being finished, and the fume-laden air is washed and returned into the room.

"This booth is made in the stationary as well as portable type and is to be used with lacquers only. It eliminates all spray-booth fire hazard, saves heat, no stack is required, gives good ventilation and returns the washed air to the finishing-room."

Care of Spray Gun

The three parts of the average spray gun that usually wear out first are the air spring, the fluid tip and the needle. The air spring is naturally sensitive and more or less delicate; it is constantly in use and there is hardly any remedy for its wearing out more rapidly than other parts. However, these springs are inexpensive, and it is a good idea to keep several in stock at all times to replace the worn-out springs from time to time.

The constant friction of the needle against the fluid tip causes both to wear down and often results in an uneven or split spray stream.

One way to get longer service out of these parts is to keep them as clean as possible. If any of the finishing material becomes hardened on the needle or in the fluid tip, it will cause these parts to wear away much more quickly—and of course this gives an unsatisfactory spray. When any material becomes hardened on the needle or fluid tip, take the gun apart and clean these parts carefully with fine sandpaper, rolling the paper into a cone shape to clean the fluid tip.—John H. Hamilton.

Oak Finish Filler Trouble

Some problems of the finishing room develop very suddenly—sometimes in an hour or so, and often overnight—and quite frequently it requires considerably more time to get to the bottom or seat of the trouble than it would take to finish the article or job a couple of times if it were carried through under so-called normal conditions.

I have in mind an experience

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*99.7% Efficient by Actual *Test!*

Filters—positively keeps out all leads or benzols from spray gun.
Body—aluminum, shell-shaped.
Cushion—Non-inflated, non-irritating, pure gum; fits any face.
Exhaust Valve—positive flutter.

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Lays smooth
Does not lift
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Dries quickly
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Varnishes — Lacquers — Enamels

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Jamestown - - New York

BRANCHES
Bristol, Conn. Lenoir, N. C.
Milwaukee, Wis. New York City

which only recently took place in our finishing room. Some cases were being put through that were made of solid plain oak, each case carrying across the top a large leaf or fall which was finished separately; these leaves were 5-ply veneered stock faced up with plain oak veneer.

Now these cabinets and the leaves were stained and filled with the same material at the same time, and they were arranged precisely the same for successional applications. Then, being desirous of a nut brown or walnut effect, we decided to apply first a lacquer shading stain directly over the filler, thereby controlling the desired shade over any hard or light places in the glued-up oak.

First a case was sprayed and came out just fine; it became dry in ten minutes, but imagine our surprise when a leaf was also coated and remained in a sticky and gummed condition for an unreasonably long period of time. It seemed strange indeed, and many theories were advanced; many possibilities were considered. Did we use paraffine oil on the boards or around the presses in the glue room? No! Did we treat our veneered stock in particular any different from the other, etc?

The correct solution however was simple enough. The filler we had obtained for this job was carrying a little too heavy a portion of stearine—an animal fat which sometimes is used in fillers, whether it should be or not. The natural oak more readily absorbed these substances that were injurious to the lacquer than did the veneered leaves—due, of course, to the film of glue directly beneath the face veneer—therefore the solid oak cases came out better than the tops which could not

drink up these undersirable materials.

To work out of this trouble, we took equal parts of denatured alcohol and lacquer thinner, and to this we added a little substitute shellac, the portions being one pint of sub-shellac to a gallon of the former mixture. Then we sprayed on a liberal quantity of this material. After drying four or five hours the panels were given a light sanding with No. 6/0 sand paper. This seemed to kind of neutralize the stearine and we were allowed to proceed with our finish. Later, a more carefully selected filler was brought into use and this trouble was completely eliminated. — J. W. McFadden.

Automobile Refinishing

I have read the article by Sam'l Siegel in January issue, page 43, and I agree with Mr. Siegel to some extent about lacquer refinishing not being as complicated as the old line of paint and varnish work. But I don't think he can take a man that has followed repairing cars for years and make a very successful refinisher out of him. Probably about 75 percent of the automobile agencies have installed their own refinishing shops, but not more than 2 percent have made a success without employing the services of a first class painter and refinisher.

Only a small percentage of the automobile agencies that have installed their paint shops can really do high class refinishing. Their painter may be able to do a very good job of spray work, but he is up against it for the most important part of the finish—that is striping and trimming up the refinished job. If the striping and

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Zeller recognizes that the difficulty of high production costs often centers in the problem of finishing materials. Zeller lacquers and lacquer enamels are helping hundreds of manufacturers—many in your line—to get striking results with real production economy. The inimitable smartness and beauty of Zellac finishes, whether in colors or special style effects, goes hand in hand with Zellac durability, coverage and other recognized qualities. *Zellac is made for every conceivable purpose of up-to-date industrial finishing.*

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FOR EVERY INDUSTRIAL PURPOSE

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WICHITA DALLAS

trimming are messed and smeared up, no matter how nice the finish is, the beauty and general appearance of the job are ruined. It takes years to make expert stripers and trimmers — not months or weeks.

It is my experience that the many automobile dealers who have work to let to the custom auto paint shop are not satisfied with running from shop to shop with a scandalously low price on their used car refinishing, but they keep the nagging up about the price being too high when they already have a price 25 percent too low for the paint shop to make a legitimate profit.

There is only one solution: That is for the custom paint shop proprietor to install equipment to do body and fender repairing with his paint shop work. Body and fender repairing represent the cream of the game, but the shop must have experienced and skillful workmen. No amateur can do body or fender work satisfactorily. The proprietor could also add a top and trim line; this takes experienced men too. But if he will add these mentioned lines and charge a reasonable price and tell the automobile dealer to pay or go elsewhere, he is better off. Better make a reasonable profit on one job than break even on two jobs.—C. M. Mayfield.

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Du Pont Acquires Krebs Pigment & Chemical Co.

With the approval of the officers and representatives of a large majority of the stockholders of the Krebs Pigment & Chemical Co., manufacturers of "Ponolith", arrangements have been consummated for the acquisition of the entire assets of that company by E. I. du Pont de Nemours & Co. The assets so acquired will be promptly transferred to a new company to be organized under the laws of Delaware, having the same corporate name as the old company.

Mr. A. S. Krebs, now president of the old company, will continue as president of the new company; and no change is contemplated in the long-established policies of the company or in the manufacture and distribution of its product. The Krebs plant is located at Newport, Delaware; and sales offices will be maintained at New York City and Cleveland, with agencies at Chicago, San Francisco and other points.

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Drum after drum Hilo Colored Baking Enamels come uniform in color—no variance.

Hilo Colors are handled like Black Enamel—same thinners, same method of applying, same baking procedure, except that they bake at lower temperature.

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Write for Bulletin No. 7 — Hilo Standard Colors

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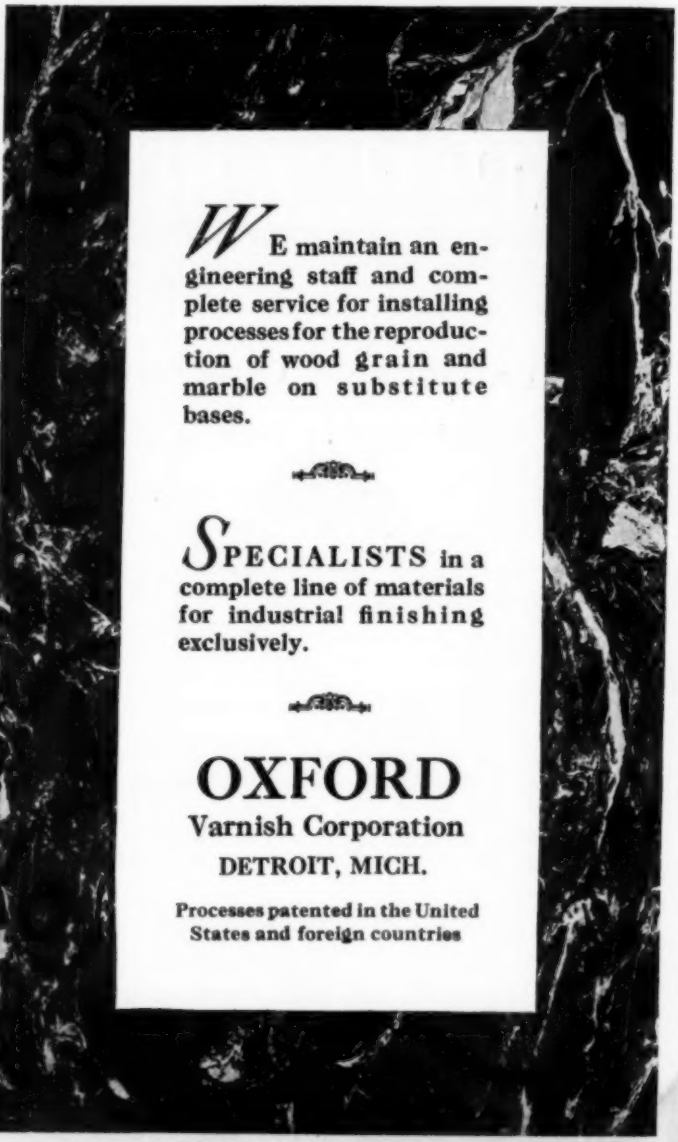
WE maintain an engineering staff and complete service for installing processes for the reproduction of wood grain and marble on substitute bases.
SPECIALISTS in a complete line of materials for industrial finishing exclusively.
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Processes patented in the United States and foreign countries

"This article is in response to Mr. Fred Mannhardt's questions regarding Wrinkle finish. If you think it is of general interest to readers of INDUSTRIAL FINISHING *magazine please make use of it."—*

Joseph F. Schmoegner

WHAT WRINKLE FINISH IS

Explaining the characteristics of wrinkle finish—what it is, how applied, number of coats needed, baking temperatures, comparison with smooth finishes, the possibility of using it as an air-drying finish, and what the final result is

By Joseph F. Schmoegner

THE material for producing "Wrinkle Finish" has the general characteristics of a high-grade baking varnish—preferably using treated chinawood oil to which are added certain gums and resins that give it distinctive wrinkling properties. When this composition is applied to metal, glass, wood or other surfaces and is subjected to baking temperatures, the upper surface of the finish alternately expands and contracts into a series of irregular ridges and valleys extending throughout the entire surface treated. The under side of the film of coating in contact with the metal, glass, wood or other surfaces, however, clings firmly to such surface and does not pull away from the same during the wrinkling of the top surface.

The properties of this finish are such that it adheres firmly to such surfaces as metal, glass, etc., without preliminary treatment. The wrinkle effect produced as above stated, is exceedingly pleasing to the eye. It is also possible to impose upon a general wrinkle background, designs and figures resembling the tops of pine-trees or giving sags and curtain effects which are extremely attractive.

Compared to Smooth Finishes

The masking (hiding) properties of wrinkle finish are unusually high, due probably to the peculiar light-reflecting action of the ridges. A single coating of unpigmented wrinkle finish, applied to a metal surface, will serve entirely to mask or hide the metal to the same extent as would result from the application of several coats of the same finish put on smoothly.

Another important and practical characteristic of the wrinkle finish is that it renders unnecessary the usual precautions that are taken to smooth out certain imperfections in metal and other surfaces when applying a smooth finish. Referring for example to metal surfaces, it is usually necessary, to first carefully prepare the surface by mechanical grinding, buffing or sanding to remove projections or any unevenness caused by spot-welding and other operations. It is then necessary to apply from two to four coats of smooth finish, rubbing down each coat to remove the slightest imperfections in surface smoothness. As a result, much time, labor, material and expenses are involved in the proper production of a smooth finish.

Single or Two-Coat Job

With the wrinkle finish, however, it is unnecessary to give the metal surface its initial preparation, the imperfections in metal or other materials being immaterial in view of the rough textured character of the final wrinkle finished surface. For the same reasons, and also because of the remarkable masking (hiding) qualities of wrinkle finish, it is possible to get the desired finishing results by the use of either one coating of wrinkle varnish or one coating with wrinkle finish and a second coating with colored lacquer, as compared with three to four coatings necessary with an ordinary smooth finish. The economical value of wrinkle finish in saving time, labor and material is very great.

As I have mentioned before, wrinkle finish may be applied either in a single coat in its initial state or pigments of other coloring material or bronze and aluminium powders may be added either directly to the coating of wrinkle finish itself, or to an overcoat of lacquer or other suitable finish. In this way, by suitable manipulation of the finishes, beautiful color effects may be produced.

Because of the ingredients used and the heat treatment to which the finish is subjected, wrinkle finish may be made as hard and durable as any of the lacquers and japans, and it will stand exposure without tarnishing or other deterioration.

The baking operation is conducted in an oven free from foul gases, in which respect the production of wrinkle finish differs materially from the production of crystalline, frosted and similar finishes, where the action of foul gases is the immediate cause of the peculiar decorative formation. The appearance and general properties of the crystalline finishes are entirely different from those of wrinkle finish.

Crackle finish is a term long used to denote compositions of lacquers or oil-paste paints laid on in two coats, with the upper so treated as to dry faster and break away, disclosing the undercoat through cracks appearing in the cover coat. Crackle finish differs in all respects both as to composition, method of application and resultant effect from wrinkle finish.

Baking Temperatures

Depending on the surface upon which wrinkle finish is applied, it is formulated accordingly. If applied upon non-porous and heat-resisting surfaces, such as metal, glass, china, pottery, fiber, bakelite, etc., no preliminary treatment is necessary with the exception of cleaning the surfaces to be finished. This type of wrinkle finish will wrinkle at a temperature of 160-deg. F. or more, and can be baked hard if necessary in half an hour at 400-deg. F., or at its lowest wrinkling temperature of 160-deg. F. for a period of from four to five hours, according to methods and speed desired.

Articles made of materials that are less heat-resisting and of a more porous nature—such as wood, paper, cardboard, celotex, oilcloth, leather, reed, willowware, etc.—require a preliminary heat treatment to liberate their normal moisture content; then the surfaces should be first coated with a sealer suitable for this work. The type of wrinkle finish suitable for the above surfaces differs to some extent from the one previously mentioned. It will wrinkle at a much lower temper-

ature, its lowest wrinkling point being 110-deg. F., and it may be baked at the same temperature in four to six hours.

The masking (hiding) and filling qualities of this type of wrinkle finish are extremely high. For example a celotex panel (a very porous and rough insulating wallboard) was treated in the foregoing manner: One coat of sealer and one coat of wrinkle finish. The result was that this finish appeared to be far more satisfactory than any other known finish with the same number of coats and the same amount of labor spent. The finished surface appeared to be perfectly filled, uniformly wrinkled and highly waterproof.

Can Be Air-Dried, Too

One more question that remains to be answered: "Is it possible to eliminate baking altogether and create a wrinkled surface through the air-drying method?" The answer is, "Yes!" This new material will wrinkle at a temperature of 70-deg. F. and harden in about 48 hours. This type of wrinkle may be applied practically over any surface free from grease, oil or wax.

How Wood Handles are Bake-Finished

Treating particularly of the baked finish in black and colors on wood handles—how to prepare the surface, what consistency of material to use and the range of safe baking temperatures

By Fred Mannhardt

TO SECURE a desirable baked finish on wood handles constant attention to details is imperative. So many things may happen to ruin your labors that the smallest thing should not be overlooked. In any finishing job, and particularly in a baked finish on wood, begin with a clean room and clean equipment.

Now all wood contains some moisture and if this is left in the wood, it might spoil the finish by being forced out through the enamel during the baked finishing process. To guard against this the wood (in the white) should be treated with heat before any finish is applied. In other words, the excess moisture should be baked out just before the finish is applied and baked.

Experience or experimenting will determine just how dry to make the wood. Suppose the moisture could be baked out of one certain kind of wood at 250-deg.F., while another would require 300-deg.F. for say two or three hours to secure satisfactory drying. This would be about the safe temperature to use. During this drying or baking-in-the-white, the circulation of air must be kept "at par" in the oven. The handles should be arranged so the air can filter through, thereby allowing the moisture to escape.

Clean Smooth Surfaces

The wood surfaces may be a trifle rough after this operation, but a light sanding with a fine grade of sandpaper, followed by

Base metal must be clean

WHEN metal surfaces are to be cleaned before refinishing, use an Oakite material and method to assure satisfactory results.

Oakite cleaning removes every trace of old paint, varnish, lacquer and enamel quickly and thoroughly. Removes oil, dirt and grease without leaving films or sticky spots to mar the appearance of the refinish job.

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a dusting, should put them in trim for enameling.

It is important that the surfaces of all the wood handles are clean and smooth. It is impossible to obtain a satisfactory smooth finish over rough surfaces. Small articles such as handles can be smoothed in a tumbling barrel —either with or without abrasive.

After the cleaning and smoothing operations, the handles should be dusted off either with compressed air or whatever other facilities may be available. This dusting process insures cleaner dip finishing and a cleaner finished surface.

There are various methods of coating, but one convenient way that eliminates considerable handling is to use racks which will also serve to hold the handles properly during the baking.

Dip when the handles are warm (not hot) if possible. The baking temperature should be brought up slowly at the start. A fairly safe way is to gradually come to the 250-deg.F. mark during the first hour; then raise the heat to 300-deg.F. and hold it there for two or three hours, or until the finish is properly baked. Your own judgment must be used here, as either the wood or the enamel might vary from any set rule.

Use the enamel thin if possible. There are several reasons for this; it penetrates more deeply into the wood, flows more evenly, dries better, and it is not so liable to chip off or become marred. Of course, the use of thin enamel may require more coats but I believe it pays in the end, all things considered.

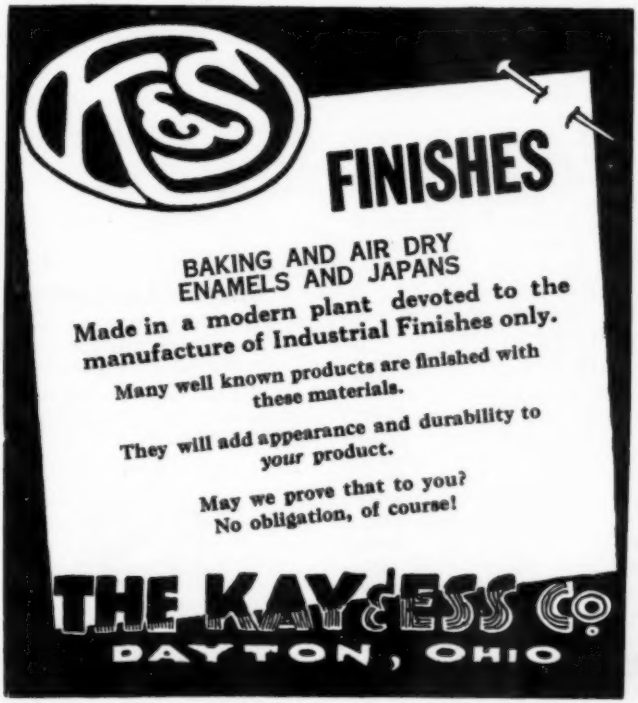
Never bake the later coats at a higher temperature than the preceeding ones. Lower each

succeeding baking temperature a degree or two.

Baking Color Enamels

In baking colors on wood the same process is used as for the black, with the exception of the temperature. Colors will not stand as much heat as black, especially the lighter tints. Avoid baking light colors in the same oven and at the same time with darker shades. Of course, this is not always or necessarily the case; colors can be made to bake at the same temperature, be they light or dark, but except in special cases they are not made that way.

It is well for the finisher to know what baking temperatures the colors to be used will stand—that is, the maximum heat permissible without danger of discoloration. It is a good plan to make notes of the first few bakings, particularly on light colors, as a few degrees in temperature may change the color. Also, provide suitable circulation of air in the oven to take away the fumes. No set rules can be laid down on baking, as almost every color varies. Here you must trust in the manufacturer's specifications and supplement this information by using your own good judgment.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Many well known products are finished with these materials.
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May we prove that to you?
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THE KAY DESS CO.
DAYTON, OHIO

Japanese Krinkle and Crackle Finish

I want to tell you about *krinkle* and *crackle* finishes "a la Japonaise." We prepare a special pasty paint with urushi* and Tofu (beans curd), which corresponds to magilp† in this country. When a rather thick coating is half dried we pass over it a wet bamboo roller having desired krinkle or any other suitable grain.

By spotting with a rough brush or a bundle of fine bamboo sticks, various plastic finishes are obtained. Instead of lifting the brush straight up while spotting, the brush can be twisted up (twisted when pulled from the surface) so as to get different effects. By sprinkling charcoal powder or other pigments on the surface, the finish will look like a rough metal or the bark of a tree. A roughly finished surface mottled with blue, red and yellow pigments, gives a very pretty effect.

Another way of getting krinkle finish is to apply heat suddenly while the urushi coating is still wet; after getting desired effect, let it dry in the regular way.

The crackle finish is done like this: After the ground coating is thoroughly dry, give the finish coating of different color and when it is about dry, with a soft brush apply all over the surface the well beaten white of eggs. The size of crackle can be controlled to a more or less degree by the condition of the last coating, and the white of egg is washed with water and let dry before varnishing.

We use real gold powder, not to talk about gold leaf, tinsels and smalts‡ galore.

Colored smalts are prepared by painting glass plates with colored paints made of urushi; when dry they are scraped off to be crashed and sifted into different grades.

Have you ever seen the egg shell finish? White egg shells are carefully washed, dried and sifted into sizes desired, and used in the same manner as any other smalt —usually half of surface so that it will contrast with the other half. A variation of it is: Instead of applying the egg shell grains, big pieces of egg shell are crashed onto the surface, giving a very pretty mosaic effect. When dry, polish with the stone and apply the final transparent varnish—F. S. Araki.

*See March issue, pages 74 & 76.

† Magilp or megilp: A gelatinous preparation commonly of linseed oil and mastic varnish, used by artists as a vehicle for colors.

‡ Smalt: A deep blue pigment or coloring material prepared by fusing together silica, potash and oxide of cobalt, and reducing to powder the glass thus formed. In the arts it is now largely replaced by cobalt blue and artificial ultramarine.

Made *free* from gum

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Gums cut, fused or treated to meet individual requirements.
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QUESTIONS AND ANSWERS

This service department is conducted to meet the readers' need for prompt information on specific problems, and to give others an opportunity to review the questions and to offer comments, suggestions or answers

Ground Colors for Metal Finishing

I am interested in a lacquer ground color for metal to reproduce mahogany and other wood finishes; also graining colors that may be worked by hand and over which clear lacquer may be applied successfully after graining. —C. S.

Lacquer ground colors of the correct shade for reproducing mahogany on metal can be obtained from several manufacturers of finishing materials who advertise in this magazine. When requesting samples you should send the finishing material manufacturer a sample panel or a piece of work to indicate the approximate shade of mahogany you wish to reproduce.

Graining colors that may be worked by hand and over which clear lacquer can be applied successfully are of two types. Distemper colors, which are pigment colors ground in water with a suitable binding agent, may be used. Distemper colors are obtainable in various shades. These colors can be blended together to get any shade or tone desired. Any necessary thinning should be done with water.

The other type of graining color suitable for use under lacquer is of an oil color or japan color type. When a paint primer is used, and baking facilities are available, it is better to use colors ground in an oil and bake the graining coat after it has been grained. Where the graining color must be dried, as is the case when it is used over a lacquer primer, then colors ground in japan are preferable. These, too, may be obtained from all reliable finish manufacturers and they can be mixed together to produce any desired shade. Oil colors and japan colors should be thinned with turpentine before applying them to the work.—W. H. Martindale.

Breakfast Room Furniture Color Schemes

We are interested in suitable color combinations for finishing breakfast tables and chairs. We want an appropriate color for the body of the set and attractive colors for striping or shading.—K. H. F. Co.

The color schemes I suggest for breakfast furniture are included in this article. Now the schemes laid out are all for more or less newer ideas in color. However, you will note the gray and brown and red can be toned down somewhat if you feel they are too bright, and in that way they could be used in a cheaper line of furniture.

All colors herein listed have been tried for various effects in

Improved Finishing Results with

Amerilac Lacquers

From every drum or container bearing the name "AMERILAC," flows a lacquer that is uniform and guaranteed in quality for surfacing high-grade furniture. Yet, it can be used on a lower production cost basis because it is easily applied, smooth flowing, quick drying and requires little sanding. Many furniture manufacturers record improved finishing results from the use of Amerilac Lacquers --either the No. 96 Gloss or the No. 97 Rubbed Effect, according to finish desired.

Some interesting facts are available which we will be glad to send you-- without obligation, of course!

Ask about
Amerilac No. 96 Gloss and
No. 97 Rubbed Effect Lacquers.

The American Varnish Co.
High Grade Varnishes, Pyroxylin Finishes
Stains, Fillers and Enamels
1138-1146 N. Branch St.
CHICAGO

SUPERIORITY UNIFORMITY

blends, etc., and all give pleasing effects. The seat, if upholstered, can be called one part of the design. For production purposes on moderate-priced goods, one color process is plenty for trim if the seats are leather, etc., of another tone.

Laying out colors takes a little time and study. To make sure that these are not out of line with the present demand, or beyond what would ordinarily be the demand, I did a little investigating in the line of other accessories. I find that the colors laid out are all good sellers, and now, here they are and I hope they will prove beneficial:

1—Transparent red base looks almost like rose when applied. Edge blended to deep rose and gray. Trim: Lemon green or Cerulian blue. Chair seats if upholstered: Lemon green or Cerulian blue, two tones darker than trim.

2—Transparent cobalt blue or gray side (base) rubbed off white. Blended to blue-gray-green edge trim. Orange and silver. Vermilion. Chair seats black on deep Prussian blue.

3—Table gray (light on mauve side). Table edge border (about 6 or 8-in.) darker gray. Trim, silver and lemon silver with black. Seats a tomato orange, and if seats are not upholstered apply tomato orange in trim.

4—Transparent green (yellow, almost sage yellow). Edge blended to darker sage yellow, green; trim lemon yellow, and seats lemon yellow deep, or very dark green, or cadmium deep yellow.

5—Table tan (about color of pine when beeswax has been applied). Edge blended with a walnut brown on golden side. Banding on moulding edge deeper

A-LAC-O OIL and Pyroxylin Base PRIMERS

for Wood or Metal

\# 300 Gray Metal Primer
\# 309 White Metal Primer
\# 311 Red Oxide Metal Primer

Dry to recoat in one hour

\# 301 Gray Wood Primer
\# 310 White Wood Primer

Dry to recoat in two hours

These primers combine the good qualities of the old oil base and pyroxylin primers—giving maximum elasticity, adhesion and durability.

All must be thinned at least 100 per cent for spraying.

If you are now using lacquer for finishing, these primers will prove a revelation to you!

Try them. You will agree that here at last, are some quick-drying primers that take the kink out of your finishers' troubles.

Details cheerfully furnished.

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Irvington, N. J.

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Meet the most rigid requirements and at a price you will regard as reasonable.

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brown—almost pure brown. Trim lemon green very pale, with burnt orange about the color of a blood orange (fruit). Seats this same blood orange color or a very, very dark brown.—La Vera Ann Pohl.

Smoky Appearance on Lacquered Cabinet

As foreman of the finishing room, I have had great difficulty in cleaning up the surfaces on our lacquered cabinets after the rubbing operation, so that the finished surface does not have a smoky or hazy looking appearance. Our operations on the cabinets are as follows:

First, I stain with a lacquer stain; let dry over night; fill and dry until next day; then shade and shellac, and let set over night; then the cabinet is rubbed and cleaned the same day. In the cleaning operation we use several grades of cleaner. The cabinets set a day or two after the cleaning operation, during which time the smoky appearance becomes noticeable.

My firm and I are very anxious to learn the correct solution to this difficulty. If a solution is not at hand I will appreciate any suggestions that may be offered.—W. E. W.

The smoked or "bloomed" appearance to which you refer is most frequently caused by:

1—Soft-drying lacquer containing too much gum and plasticiser, and not enough nitrocellulose.

2—Rubbing too soon after application, or before the lacquer has hardened sufficiently.

3—Rubbing with an improper or unsuitable rubbing oil, that is one that softens the lacquer or one that leaves a greasy film and is hard to wipe from the surface.

The so-called "debloomed" rubbing oil is preferable to the ordinary type of purplish-colored oil.

4—Rubbing with too coarse pumice stone, without enough lubrication or with too much pressure; this has a tendency to scratch or scour the surface severely.

5—Improper cleaning after rubbing. Many of the lower priced lacquers, or those which produce a very heavy film on the work, contain a large percentage of gums. To retard the brittleness caused by this excess of gums, it is necessary to use considerable "softener" or "plasticiser" in these lacquers. Very few lacquers of this type will dry sufficiently hard to rub without blooming after drying overnight. When two coats are applied in one day and the work is rubbed the next morning, blooming is almost sure to follow. If your trouble is due to this cause, you can use a harder-drying lacquer containing a larger percentage of nitrocelluiose, or you can allow 48 hours after the last coat of lacquer, before rubbing.

Many cases of lacquer blooming are caused by attempting to rub the lacquer too soon after its application. If the lacquer coats have been piled on heavily, or if drying conditions are poor, two coats of lacquer applied in one day may not be hard enough the following day to rub satisfactorily. If the lacquer is of the right type, a longer drying period before rubbing will eliminate this trouble.

It has been suggested that blooming of lacquer after rubbing is due primarily to the fact that minute quantities of the rubbing oil and pumice stone slush are absorbed by the surface of the lacquer film where the lacquer film is soft or of an improper type. In such cases, when the rubbed surface is cleaned off, not all of the

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4" to 5" fan spray

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A Suggestion

Surely any first-class finisher is open to suggestions that pertain to his particular business.

You are constantly being bothered with the clouds of gritty dust, that are caused by the wearing away of your cement floors, falling on articles just finished.

You, no doubt, have been troubled with this condition all through your plant; if so, our suggestion to you is to apply a coat or two of FRENCH'S CEMENT FLOOR PAINT, and your troubles are at an end.

FRENCH'S CEMENT FLOOR PAINT is made in ten attractive shades, is easy to apply, water-proof and after being applied flows to an enamel-like finish and gives your floor that easy-to-keep-clean high lustre.

FRENCH'S CEMENT FLOOR PAINT not only stops dusting of the floors, but prevents dampness appearing on the same, and last but not least, stops disintegration which of course figures to a great extent in your building up-keep program.

FRENCH'S CEMENT FLOOR PAINT is a scientifically prepared paint developed and manufactured exclusively by Samuel H. French & Company, Philadelphia, Pa.

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This is melted in the hole, dent or scratch. The damaged place is then rubbed down and polished. The Shellac will not shrink nor check and is extremely tough. It is indeed the easiest, the quickest, the most economical and only permanently satisfactory method to repair serious injury to any finish.

Stick Shellac color card and booklet "How to Repair Varnished Surfaces" will be sent you free upon request.

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pumice slush is removed. After 24 to 48 hours the traces of rubbing oil evaporate from the film and allow the pumice stone slush to take on a grayish appearance, as contrasted with its transparent nature when wet with oil.

Coarse pumice stone, inadequate lubrication, too much pressure, and similar conditions which promote "scouring" or severe scratching of the film—these also prevent the oil and pumice slush being wiped from the surface thoroughly and as a result the smoked effect eventually shows up.

Where there is any tendency for the lacquer finish to bloom after rubbing, it is desirable to look into all the conditions and circumstances mentioned above, making such changes as may seem advisable. Any cleaning material used to remove the bloom should not be used until the next day after rubbing, to allow the rubbing oil sufficient time to evaporate from the lacquered surface.

The cleaner should contain soap or some similar ingredient which will cut the greasy residue and loosen up the fine particles of pumice slush. It should also contain the necessary ingredients to allow it to be wiped thoroughly from the surface so as to leave a clean dry finish free from grease. I believe it is a mistake to use the cleaner the same day the lacquer is rubbed.—R. L. Masterson.

Floor Finishing with Lacquer

I am interested in knowing whether it is possible to use a clear lacquer on a plain white oak floor, instead of shellac. Ordinarily, I understand that a filler is applied, followed by shellac and then the wax.

I thought that a lacquer finish

would be more durable than shellac and wonder whether you have any information on hand relative to this kind of work, and how it should be handled.

Then too, have you had any occasion to hear of a lacquer enamel, white or ivory, being used on a bath room floor instead of using tile, or linoleum?—W. P. O. Co.

Clear lacquer can be used in place of shellac on hardwood floors, provided the floors are clean and free from oil or wax; otherwise the lacquer will not harden thoroughly. The lacquer can be applied by spraying or by brushing if one uses a little care. Lacquer and shellac mixed together make a good floor finish also.

I have never seen lacquer enamel used on bathroom floors instead of tile or linoleum, but see no reason why it could not be so used if the appearance would be satisfactory to the home owner. —F. C. Overhauser.

Splashed Shampoo Damages Finish on Barber Furniture

We are manufacturers of barber shop furniture and are having a lot of trouble with finishing cabinets of a certain type.

This type of cabinet is made to set in the wall next to a lavatory and as the barber shampoos a customer, the water, soap and shampoo splashes on this cabinet and turns the finish white and causes the finish to crack and peel off.

The finish we use on these cabinets is water stain filler and spar varnish. We have also tried lacquer.—K. C. C.

Undoubtedly this trouble is caused as much by the wood taking on moisture and swelling

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Our shoe-handle wire brushes cannot be beat for sanding and cleaning purposes. They are made of round wire.

No.	No. of Rows	Size of Back	Length Wire
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Chicago — 4 row	$4.50	$.45
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Produces a decorative effect surpassing any other surface appeal. Various graining effects on wood surfaces, preparatory to lacquering, can be economically produced with the MULTI-BLASTER. Also impregnates by stencil process, designs on cabinet work.

MULTIBLASTERS made in types for every purpose of SANDblasting and SPRAY painting, and are PORTABLE.

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(thereby "pushing off" the finish) as by the soap and water having an effect on the finish. I would suggest that a thin-bodied prepared Chinese wood oil sealer be used on the wood over the stain coat and under the filler to protect the wood as much as possible from absorbing moisture. This sealer should be applied to the inside as well as to the outside surfaces of the cabinets, and particular attention should be given to edges and end wood. The sealer should dry overnight before the filler is applied.

There are spar varnishes which are waterproof and will not turn white, even when immersed in water. The use of such a spar varnish over the above system of preparation of the wood should eliminate the trouble. When the finished wood surfaces are subjected to such severe service, I would suggest using spar varnish instead of lacquer.—C.F.Merrifield.

Tumbled Wood Turnings Smoothed, Waxed, Polished

We are making various turnings out of cedar, fir, maple, alder and birch for use in our toy manufacturing. We know that we can give a much smoother finish to these turnings by tumbling them, but we know nothing whatever of the process of tumbling. We would like to get some information. We are not referring to the process of putting enamel or lacquer on turnings by means of tumbling, but simply the process of obtaining a smoother finish and in some cases a polish on the white wood itself. —T. Toys, Inc.

The toy parts made by this company are mostly very small, and this makes the tumbling finish especially economical since it

saves a great deal of handling.

I believe the finish this firm requires may be obtained by tumbling the turnings in a tumbling barrel without any finishing material whatever. To get a smooth surface however, an octagonal barrel must be used. In an ordinary round barrel, the turnings begin to slide as soon as they start to become smooth. The eight sides of the octagonal barrel serve to break up the skid, and thereby effect the required smoothing action. The turnings rubbing against one another wear off the roughness, and in doing this a certain amount of heat is generated that assists the process.

A good plan is to have a barrel of this type equipped with a solid door and also a screen door which is interchangeable with it. The screen door may be left in place while the turnings are being tumbled in the above manner; then all dust will sift out.

A glassy-smooth finish may be obtained by tumbling in a little FFF pumice. In this case, of course, the solid door must be in place until the required "finish" is obtained. Then it may be replaced by the screen door and the barrel revolved until the batch is dust free.

When the turnings are smooth enough, a few small pieces of hard South American carnauba wax may be added, and about an hour's tumbling will produce a good pale finish. A little of this wax goes a long way. Its use is preferable to that of paraffin wax, as it produces a hard finish, while the latter material will not dry hard.

As I understand the requirements of this company, the management does not want to use any finishing material for the operation.

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◆

Users of our finishing materials are invited to take advantage of our service which includes:

1—Complete color and decorative harmonies.

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3—A study of your manufacturing facilities with a view to producing merchandise at lower cost.

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Can be used with Duco or Lacquer—makes every sort of stripe from finest to a stripe ½-inch wide.

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However, a durable full-bodied clear finish may be obtained with tumbling lacquer and polish, and this also produces a very high gloss that is unaffected by heat, moisture and severe wear. To obtain this finish, the turnings are tumbled in the special lacquer until fully coated and dry.

Then the tumbling polish is added without removing the turnings from the barrel, and the tumbling process is continued until a high degree of gloss results. The complete finish may be obtained, with the turnings dry and ready for assembly or shipment within two hours. This finish is also obtainable in colors.

The hardwoods, such as birch, will naturally take a better polish than softer woods. In the latter case especially, the addition of a little of the carnauba wax after the turnings have "begun to get smoothed up" will reduce splintering.—H. R. Anderson.*

Reclaim Wiping Cloths

By way of comment on the article "Salvaging Part of What's Wasted," in February issue, page 53, the American Laundry Machinery Co., Norwood Station, Cincinnati, Ohio, calls attention to its "wiping rag washing unit" for cleaning soiled wiping rags, polishing cloths, wool and cotton waste, covers, and any other fabrics used in industrial finishing operations.

Notes from literature on this subject follow:

The material to be reclaimed is first put in a power washing-machine and washed in a solution containing soda or some similar low-priced chemical. This washing is according to a formula for the specific conditions and require-

*Advertising Manager of James B. Day & Co.

ments. After being washed the material is placed in an extractor where surplus water is removed. The final operation is the dryer.

By this method, soiled materials can be made ready for use again in a few hours. The cleaned sterilized cloths are more sanitary for the workmen and cloths treated in this manner are softer and more absorbent than when they are obtained in their original condition.

Wood Filler For High Temperatures

I would appreciate any information you can give us on a wood filler that will stand a baking heat of 500-deg. F.—B. R. T.

I never knew of anyone successfully baking wood at 500-deg. F., and can not see how any paste wood filler would be satisfactory under such conditions. The wood would lose so much moisture, warp so badly, and be affected in other ways so much by such a temperature that I do not see how a successful filler could be used.—Chas. Blanford.

Putting on Red Dots with Lacquer

Referring back to T. M. Co.'s question about "Putting on Red Dots with Lacquer," page 80, January issue: If the article is of such a shape as to permit it, prepare a stencil in jig form so it can be either hooked on the article to be spotted, or hinged so it will swing over the article. The stencil might be made in multiple so it would cover several articles.

I prefer sheet lead for cutting a simple stencil of this sort, as it can be cleaned with lacquer cleaner and it can be made to conform to irregular shapes, yet it

new!

Economy Deluxe Sprayer

For the user of industrial spray equipment this new *Economy DeLuxe Sprayer* gives better application of any paint, varnish or lacquer. Combines high efficiency, simple operation and puts new life in the paint shop. Light in weight, does not clog, easily cleaned. There are many good reasons for the present popularity of Economy Spray Products

PRICED: *DeLuxe Spray Gun—with material tube, cover, container, 25 feet air hose and connections and agitator . . . $32.00. Above without agitator . . . $30.00. DeLuxe Gun without any of above accessories . . . $22.00. 25 feet air hose with connections . . $4.50. 1 quart metal container without cover . . . $2.50.*

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Please ship me equipment listed on margin. Send complete specifications and data on other Economy Spray Equipment.

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Skielded, Portable, Adjustable

The ideal fan for speeding up drying of parts or articles in process, accelerating ventilation in certain areas, and similar purposes. Motored fan can be tilted to direct draft upward, downward or straight outward on a level.

Operates from electric light socket and is furnished with vapor-proof or enclosed type motor, as desired. Propeller blade is nickel alloy aluminum. Height 48-in., weight 70 lbs., floor space 38-in. triangular. Price very reasonable.

Send for price, descriptive circular or for any additional information desired

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are being solved satisfactorily with

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INDUSTRIAL LACQUER

HOOSIER PAINT WORKS
FORT WAYNE, IND.

is stiff enough when pressed tightly over the surface, to exclude any under-spray which would blur the dot.

A small touch-up gun is just the thing for shooting these dots, and about 12 to 15 lbs. of air pressure is sufficient for this work. As for the material to use, I would suggest regular stencil colors. This material is finely ground, and it is solid covering, quick drying, and shows a high gloss.

Hold the spray gun far enough away from the surface so that the material is preparing to dry as it strikes, yet it is still wet enough to hold on and "bite in." A little experimenting will help here; also endeavor to hold the spray gun so as to shoot straight (at right angles) at the stencil hole—not at an angle.

A much more simple way to handle such a job would be to purchase and use red dots already cut from thin red celluloid (about .005 to .01-in. thick). Wrap a piece of adhesive tape around and over the end of a ⅜-in. round stick, and you have a convenient tool for picking up the red celluloid dots, dipping them in lacquer thinner and spotting them on the surface where they are to be placed. Place some lacquer thinner or reducer in a shallow tray and in this liquid have a piece of felt wet with same; touch the wet felt with the disc, which you have picked up with the adhesive-wrapped stick.

The thinner or reducer softens the underside of the red celluloid dot, thereby conditioning it for spotting on the surface to receive a red dot. This softened celluloid will unite with the lacquered surface and hold fast. One may use a jig to locate these red dots if he prefers, for only the red dot will be wet with lacquer reducer.
—M. V. Leach.

Finishing Toyland Houses

House painting is generally understood to be an outside job—and so it is in real life. But in toyland—the world of play—we have the strange spectacle of the outside of houses being painted on the inside. The accompanying cut shows a bit of the Toycrofter's factory where play houses are turned out by hundreds.

These houses are not doll houses. They are larger, measuring 2x3-ft. or more. Rooms are open on one or both sides, like stage rooms, and here the favored juvenile owners play. Electric lights, plumbing fixtures in miniature, running water, draperies, papered walls, and doors with realistic hardware add to the delight of the children. A base covered with green felt provides a lawn about 6 in. wide all around; the entire unit is mounted on legs that bring the "ground level" up to convenient height for children.

Some interesting details of finishing are involved in this work. Walls are painted or papered,

Toy houses placed in inverted position for painting the interiors.

woodwork must be painted realistically but its size brings the work into the realm of an artist's brush.

Fir plywood is used in the construction; trim must be added; poplar is used for clapboarded houses. The outsides are sometimes just painted; again, they are stuccoed and stippled. All the

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This is a material—now used extensively in the automotive industry—that makes cleaning easy, safe and economical. Reduces the fire hazard and improves working conditions.

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work is done by brushing, as areas are too small for the spray gun to permit the sharp separations in color which are necessary to give realism and to escape the childish perception of false detail.

In the view shown here, several houses are turned upside down to get at ceilings. The fir roof is plainly visible on each; later this surface will be thatched or shingled, and this covering will be colored in harmony with the general architectural scheme. Some form of plastic material is used as a basis of roof coverings. Brick chimneys will be added later.

The Christmas trade is the busy time in a business like this. This is an example of the ultra-seasonal in manufacturing—and a short season too. Practically all seasonal manufacturing has one or two peak periods in the year, but these are of months in extent. In the playhouse business, stock is made up and stored during the year. Then, previous to the holiday deliveries, the final coatings are applied so that all the finishes will look new and fresh when put on display.—D. A. Hampson.

Nichols Products Corp.'s New York Office Moves

After April 22nd, the New York office of the Nichols Products Corp., will be located in the new Chanin Building, 122 East 42nd St., New York City.

The main office and works of the Nichols Products Corp., is located at 12,953 Greeley Ave., Detroit, Mich., and branches are also maintained at 1425 Guarantee Title Building, Cleveland, Ohio, and 519 American Bank Building, Portland, Ore.

With Valentine & Co.

The Valentine Aeronautical Department (Valentine & Co.) announces the addition to its staff of Mr. R. S. McKim, for the past seven years with the Engineering Division of the U. S. Air Service, at Dayton, Ohio.

UNIFORMING PIGMENT OIL STAINS
Used for staining such woods as Sap Gum, Sap Walnut, Tupelo, Birch or any wood which has hard and soft fibres making uniform staining difficult.
Our Uniforming Stains will give you a serviceable finish, colors clear in tone, and uniform throughout.
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EDITORIAL

Mechanical Finishing Problems

Some of the latest finishing problems that confront industrial executives and production engineers have to do with what might be properly termed the "mechanics of industrial finishing." For example, questions arise as to which of the several possible methods of application will be most satisfactory and economical for finishing certain small articles in one or more colors; and if either the dipping or spraying methods are decided upon, what suggestions or recommendations are in order as to how to hold the articles and how to handle them, or what type of racks to employ for this purpose.

Investigation of these problems reveals an immense variety of holders, racks and special apparatus that has been devised and developed to meet the peculiar conditions imposed by these new finishing jobs, which must be performed at low cost. An exchange of ideas and suggestions for the solution of these new mechanical finishing problems is enlightening and beneficial all around. Several of these new problems are being presented and discussed in the *Questions and Answers* department of INDUSTRIAL FINISHING and more are scheduled for appearance in the near future.

Spring Colors and Finishes

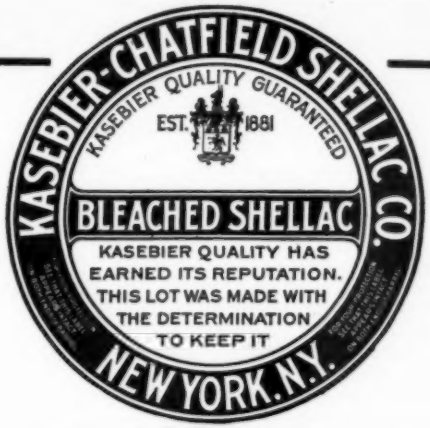
Spring is here and again Nature is being arrayed in fresh colors with renewed brilliance and luster; at the same time many of the creations of industry—the works of men—are being refreshed with new finishes and new colors. What a wonderful thing if *all* the works of men would be religously subjected to a thorough "clean-up and paint-up" (or refinish) campaign every spring. That's something to look forward to—and something to work for.

What Manufacturers Seek to Learn

Hundreds of manufacturing concerns with a commercial rating of $1,000,000 or over are seeking to learn more about the possibilities of future development along the following lines:

1—Improved production or service.
2—Reduction of production costs.
3—Development of new fields of application.
4—By-products and new materials.
5—New products.

This is indicated by replies to 5,000 questionniares sent out by a division of the Department of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KASEBIER QUALITY HAS EARNED ITS REPUTATION. THIS LOT WAS MADE WITH THE DETERMINATION TO KEEP IT
NEW YORK, N.Y.

is Pure

It Makes Better Varnish

You'll Stick to JONFLEX TAPE

the way it sticks to the job

***once you try the* FREE SAMPLE**

JONFLEX Industrial Tape, for masking jobs, newest product of the Johnson & Johnson laboratories, will make fast friends with your operators. No processing. No coaxing around corners. No wrinkling or buckling. Easy to handle. When you yank it off the only thing left behind is a razor edge line—no adhesive sticks to the job. No paint soaks through. Eighty threads to the square inch instead of the ordinary sixty makes Jonflex workable, flexible—and *tough*.

Send the coupon

The 1-inch wide, 36-yard free roll you'll get will do a better job–quicker. Time it and see.

JOHNSON & JOHNSON, New Brunswick, N.J.

Please let me try that free 36-yard roll of one-inch Jonflex Industrial Tape. I. F. 5-29

Name _____

Company _____

Street No. _____

City _____ *State* _____

Commerce. It is evident from the information obtained through these replies that more and more concerns are employing industrial research individually or in co-operation with other concerns, associations or institutes to obtain specific information which will be valuable in various ways to their business.

Reduced Inventories Depend on Transportation

Industrial concerns today are able to maintain continuous operation with smaller quantities of raw materials and supplies on hand because of the efficiency and speed of service all along the line; for example, rapid transmission of messages, quick filling of purchase orders, prompt delivery to carrier and speed of carrier's transportation.

The multiplied result of inventory reduction along all lines is immeasurable. Indeed, speedy and efficient transportation service has in this way released a prodigious amount of capital for productive enterprise and it is probable that prompt efficient transportation is more responsible than any other one thing for the elimination of periods of inflation and deflation in business.

Prompt transportation has made unnecessary the carrying of large stocks and inventories, therefore no one today has to look for the "dark clouds in the sky" and suddenly issue an edict: "Stop buying!" Industry now knows that it does not have to stock up in advance and, therefore, has no fears of sudden deflation by abnormal inventories being suddenly thrown upon the market.

But, according to Mr. M. J. Gormley, Chairman of Car Service Division, American Railway Association, there is one phase of this inventory reducing and resultant hand-to-mouth buying which, if carried to extremes, will defeat the efficient transportation which makes it possible. There is a tendency on the part of some, because of the speed and reliability of railroad service, to order materials in small quantities not constituting a full load to the car. Every car of freight that is not loaded to capacity represents a waste of transportation, uneconomic and unjustifiable.

Mr. Gormley declares that "the one thought I try to leave with shippers and receivers at all times is this: The speed and reliability of railroad service is yours; use it as you will but remember that a continuation of the present satisfactory service depends, more than on anything else, on elimination of waste in transportation. Specify full carloads wherever and whenever practicable."

The hardware and machine industries are applying a little color here and there and find that this stimulates sales.

Why Mail Is Lost

More than half a million changes of address were filed with the Chicago Post Office during the past year, according to Postmaster Arthur C. Lueder, but there were many thousands who moved and did not notify the post office, with the result that many pieces of first-class mail and parcel post remained undelivered and great quantities of circular matter and newspapers were returned or destroyed.

If you move, notify the post office, *giving the old and new addresses.* Blanks for this purpose may be obtained from the carrier, or an ordinary post card or letter may be used. Roomers should have mail addressed in care of the person whose name appears upon the mail box.

Subscribers should immediately notify the publisher of a change of address, so that you may continue to receive your copy without interruption.